

REPORT NO. 207-KAR-03-005

**SAFETY COMPLIANCE TESTING
FOR FMVSS 207**

SEATING SYSTEMS

2003 TOYOTA
COROLLA CE
4 DOOR SEDAN

NHTSA NO. C35104

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AUGUST 7, 2003

FINAL REPORT

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TABLE OF CONTENTS

<u>Section</u>		<u>Page</u>
1	Purpose of Compliance Test	1
2	Test Procedure and Data Summary	2
3	Compliance Test Data	4
4	Noncompliance Data (if applicable)	--

Appendix

A	Photographs
B	Data Plots
C	Test Equipment List and Calibration Information

LIST OF DATA SHEETS

<u>Data Sheet</u>		<u>Page</u>
1	Test Vehicle Receiving Inspection	5
2	Seating System Test Results	6
3	Seat Back Angles	9
4	Report of Vehicle Condition at the Completion of Testing	10

LIST OF PHOTOGRAPHS

<u>Figure</u>		<u>Page</u>
A-1	Left Front, as Received	A-1
A-2	Left Side, as Received	A-2
A-3	Right Rear, as Received	A-3
A-4	Right Side, as Received	A-4
A-5	Vehicle Certification Label	A-5
A-6	Vehicle Tire Label	A-6
A-7	Vehicle Mounted in Test Fixture	A-7
A-8	Vehicle Mounted in Test Fixture	A-8
A-9	Vehicle Mounted in Test Fixture	A-9
A-10	Vehicle Mounted in Test Fixture	A-10
A-11	Aft Moment on Seat Frame and Adjusters, Driver's Side Pre-Test	A-11
A-12	Aft Moment, on Seat Frame and Adjusters, Driver's Post-Test	A-12
A-13	Aft Moment on Seat Frame and Adjusters, Passenger's Side, Pre-Test	A-13
A-14	Aft Moment on Seat Frame and Adjusters, Passenger's Side, Post-Test	A-14
A-15	Aft Load on Seat Frame and Adjusters, Driver's Side, Pre-Test	A-15
A-16	Aft Load on Seat Frame and Adjusters, Driver's Side, Post-Test	A-16
A-17	Aft Load on Seat Frame and Adjusters, Passenger's Side, Pre-Test	A-17
A-18	Aft Load on Seat Frame and Adjusters, Passenger's Side, Post-Test	A-18
A-19	Forward Load on Seat Frame and Adjusters, Drive's Side, Pre Test	A-19
A-20	Forward Load on Seat Frame and Adjusters, Driver's Side, Post-Test	A-20
A-21	Forward Load on Seat Frame and Adjusters, Passenger's Side, Pre-Test	A-21
A-22	Forward Load on Seat Frame and Adjusters, Passenger's Side, Post-Test	A-22
A-23	207/210 Forward Load on Seat Frame and Adjusters, Driver's Side, Pre-Test	A-23
A-24	207/210 Forward Load on Seat Frame and Adjusters, Driver's Side, Post-Test	A-24
A-25	207/210 Forward Load on Seat Frame and Adjusters, Driver's Side, Pre-Test	A-25
A-26	207/210 Forward Load on Seat Frame and Adjusters, Driver's Side, Post-Test	A-26
A-27	207/210 Forward Load on Seat Frame and Adjusters, Passenger's Side, Pre-Test	A-27

LIST OF PHOTOGRAPHS (continued)

<u>Figure</u>		<u>Page</u>
A-28	207/210 Forward Load on Seat Frame and Adjusters, Passenger's Side, Post-Test	A-28
A-29	207/210 Forward Load on Seat Frame and Adjusters, Passenger's Side, Pre-Test	A-29
A-30	207/210 Forward Load on Seat Frame and Adjusters, Passenger's Side, Post-Test	A-30
A-31	Aft Load on Seat Frame and Adjusters, Driver's Side Rear, Pre-Test	A-31
A-32	Aft Load on Seat Frame and Adjusters, Driver's Side Rear, Post-Test	A-32
A-33	Aft Load on Seat Frame and Adjusters, Passenger's Side Rear, Pre-Test	A-33
A-34	Aft Load on Seat Frame and Adjusters, Passenger's Side Rear, Post-Test	A-34
A-35	Forward Load on Seat Frame Adjusters, Driver's Side Rear, Pre-Test	A-35
A-36	Forward Load on Seat Frame and Adjusters, Driver's Side Rear, Post-Test	A-36
A-37	Forward Load on Seat Frame and Adjusters, Passenger's Side Rear, Pre-Test	A-37
A-38	Forward Load on Seat Frame and Adjusters, Passenger's Side Rear, Post-Test	A-38
A-39	Floor Pan Anchors, Left Front Seat Overall, Pre-Test	A-39
A-40	Floor Pan Anchors, Left Front Seat Overall, Post-Test	A-40
A-41	Seat Anchors, Left Front Seat Overall, Pre-Test	A-41
A-42	Seat Anchors, Left Front Seat Overall, Post-Test	A-42
A-43	Floor Pan Anchor, Left Front Seat, Pre-Test	A-43
A-44	Floor Pan Anchor, Left Front Seat, Post-Test	A-44
A-45	Seat Anchor, Left Front Seat, Pre-Test	A-45
A-46	Seat Anchor, Left Front Seat, Post-Test	A-46
A-47	Floor Pan Anchor, Left Front Seat, Pre-Test	A-47
A-48	Floor Pan Anchor, Left Front Seat, Post-Test	A-48
A-49	Seat Anchor, Left Front Seat, Pre-Test	A-49
A-50	Seat Anchor, Left Front Seat, Post-Test	A-50
A-51	Floor Pan Anchor, Left Front Seat, Pre-Test	A-51

LIST OF PHOTOGRAPHS (continued)

<u>Figure</u>		<u>Page</u>
A-52	Floor Pan Anchor, Left Front Seat, Post-Test	A-52
A-53	Seat Anchor, Left Front Seat, Pre-Test	A-53
A-54	Seat Anchor, Left Front Seat, Post-Test	A-54
A-55	Floor Pan Anchor, Left Front Seat, Pre-Test	A-55
A-56	Floor Pan Anchor, Left Front Seat, Post-Test	A-56
A-57	Seat Anchor, Left Front Seat, Pre-Test	A-57
A-58	Seat Anchor, Left Front Seat, Post-Test	A-58
A-59	Floor Pan Anchors, Right Front Seat Overall Pre-Test	A-59
A-60	Floor Pan Anchors, Right Front Seat Overall, Post-Test	A-60
A-61	Seat Anchors, Right Front Seat Overall, Pre-Test	A-61
A-62	Seat Anchors, Right Front Seat Overall, Post-Test	A-62
A-63	Floor Pan Anchor, Right Front Seat, Pre-Test	A-63
A-64	Floor Pan Anchor, Right Front Seat, Post-Test	A-64
A-65	Seat Anchor, Right Front Seat, Pre-Test	A-65
A-66	Seat Anchor, Right Front Seat, Post-Test	A-66
A-67	Floor Pan Anchor, Right Front Seat, Pre-Test	A-67
A-68	Floor Pan Anchor, Right Front Seat, Post-Test	A-68
A-69	Seat Anchor, Right Front Seat, Pre-Test	A-69
A-70	Seat Anchor, Right Front Seat, Post-Test	A-70
A-71	Floor Pan Anchor, Right Front Seat, Pre-Test	A-71
A-72	Floor Pan Anchor, Right Front Seat, Post-Test	A-72
A-73	Seat Anchor, Right Front Seat, Pre-Test	A-73
A-74	Seat Anchor, Right Front Seat, Post-Test	A-74
A-75	Floor Pan Anchor, Right Front Seat, Pre-Test	A-75
A-76	Floor Pan Anchor, Right Front Seat, Post-Test	A-76
A-77	Seat Anchor, Right Front Seat, Pre-Test	A-77
A-78	Seat Anchor, Right Front Seat, Post-Test	A-78
A-79	Floor Pan Anchors, Rear Seat, Seat Cushion Overall, Pre-Test	A-79
A-80	Floor Pan Anchors, Rear Seat, Seat Cushion Overall, Post-Test	A-80
A-81	Seat Anchors, Rear Seat, Seat Cushion Overall, Pre-Test	A-81
A-82	Seat Anchors, Rear Seat, Seat Cushion Overall, Post-Test	A-82
A-83	Floor Pan Anchor, Rear Seat, Seat Cushion, Pre-Test	A-83

LIST OF PHOTOGRAPHS (continued)

<u>Figure</u>		<u>Page</u>
A-84	Floor Pan Anchor, Rear Seat, Seat Cushion, Post-Test	A-84
A-85	Seat Anchor, Rear Seat, Seat Cushion, Pre-Test	A-85
A-86	Seat Anchor, Rear Seat, Seat Cushion, Post-Test	A-86
A-87	Floor Pan Anchor, Rear Seat, Seat Cushion, Pre-Test	A-87
A-88	Floor Pan Anchor, Rear Seat, Seat Cushion, Post-Test	A-88
A-89	Seat Anchor, Rear Seat, Seat Cushion, Pre-Test	A-89
A-90	Seat Anchor, Rear Seat, Seat Cushion, Post-Test	A-90
A-91	Floor Pan Anchor, Rear Seat Cushion, Pre-Test	A-91
A-92	Floor Pan Anchor, Rear Seat Cushion, Post-Test	A-92
A-93	Seat Anchor, Rear Seat, Seat Cushion, Pre-Test	A-93
A-94	Seat Anchor, Rear Seat, Seat Cushion, Post-Test	A-94
A-95	Floor Pan Anchors, Left and Right Seats, Seat Backs Overall, Pre-Test	A-95
A-96	Floor Pan Anchors, Left and Right Seats, Seat Back Overall, Post-Test	A-96
A-97	Seat Anchors, Left Rear Seat, Seat Back, Pre-Test	A-97
A-98	Seat Anchors, Left Rear Seat, Seat Back, Post-Test	A-98
A-99	Floor Pan Anchor, Left Rear Seat, Seat Back, Pre-Test	A-99
A-100	Floor Pan Anchor, Left Rear Seat, Seat Back, Post-Test	A-100
A-101	Seat Anchor, Left Rear Seat, Seat Back, Pre-Test	A-101
A-102	Seat Anchor, Left Rear Seat, Seat Back, Post-Test	A-102
A-103	Floor Pan Anchor, Left Rear Seat, Seat Back, Pre-Test	A-103
A-104	Floor Pan Anchor, Left Rear Seat, Seat Back, Post-Test	A-104
A-105	Seat Anchor, Left Rear Seat, Seat Back, Pre-Test	A-105
A-106	Seat Anchor, Left Rear Seat, Seat Back, Post-Test	A-106
A-107	Floor Pan Anchor, Left Rear Seat, Seat Back, Pre-Test	A-107
A-108	Floor Pan Anchor, Left Rear Seat, Seat Back, Post-Test	A-108
A-109	Seat Anchor, Left Rear Seat, Seat Back, Pre-Test	A-109
A-110	Seat Anchor, Left Rear Seat, Seat Back, Post-Test	A-110
A-111	Floor Pan Anchor, Left and Right Rear Seats, Seat Backs Overall Pre-Test	A-111
A-112	Floor Pan Anchor, Left and Right Rear Seats, Seat Backs Overall Post-Test	A-112
A-113	Seat Anchors, Right Rear Seat, Seat Back, Pre-Test	A-113

LIST OF PHOTOGRAPHS (continued)

<u>Figure</u>		<u>Page</u>
A-114	Seat Anchors, Right Rear Seat, Seat Back, Post-Test	A-114
A-115	Floor Pan Anchor, Right Rear Seat, Seat Back, Pre-Test	A-115
A-116	Floor Pan Anchor, Right Rear Seat, Seat Back, Post-Test	A-116
A-117	Seat Anchor, Right Rear Seat, Seat Back, Pre-Test	A-117
A-118	Seat Anchor, Right Rear Seat, Seat Back, Post-Test	A-118
A-119	Floor Pan Anchor, Right Rear Seat, Seat Back, Pre-Test	A-119
A-120	Floor Pan Anchor, Right Rear Seat, Seat Back, Post-Test	A-120
A-121	Seat Anchor, Right Rear Seat, Seat Back, Pre-Test	A-121
A-122	Seat Anchor, Right Rear Seat, Seat Back, Post-Test	A-122
A-123	Floor Pan Anchor, Right Rear Seat, Seat Back, Pre-Test	A-123
A-124	Floor Pan Anchor, Right Rear Seat, Seat Back, Post-Test	A-124
A-125	Seat Anchor, Right Rear Seat, Seat Back, Pre-Test	A-125
A-126	Seat Anchor, Right Rear Seat, Seat Back, Post-Test	A-126

LIST OF DATA PLOTS

<u>Data Plot</u>		<u>Page</u>
B-1	Driver Upper X-Member	B-1
B-1	Passenger Upper X-Member	B-1
B-2	Driver Seat Frame	B-2
B-2	Passenger Seat Frame	B-2
B-3	Driver Seat Frame	B-3
B-3	Passenger Seat Frame	B-3
B-4	Driver Lap Belt Force / Driver Shoulder Belt Force	B-4
B-4	Passenger Lap Belt Force / Passenger Shoulder Belt Force	B-4
B-5	Driver Seat Force	B-5
B-5	Passenger Seat Force	B-5
B-6	Left Rear Passenger Seat Back / Right Rear Passenger Seat Back	B-6
B-6	Center Rear Passenger Seat Cushion	B-6
B-7	Left Rear Passenger Seat Back / Right Rear Passenger Seat Back	B-7

SECTION 1
PURPOSE OF COMPLIANCE TEST

1. PURPOSE OF COMPLIANCE TEST

Tests were conducted on a 2003 Toyota Corolla CE 4 Door Sedan, manufactured by New United Motor Manufacturing, to determine compliance with FMVSS 207, "Seating Systems". The purpose of this standard is to reduce the number of deaths and injuries that may be caused by the failure of seats, their attachment hardware, and their installation when said failure results from the forces on the seat in a vehicle impact.

All tests were conducted based on the current National Highway Traffic Safety Administration (NHTSA), Office of Vehicle Safety Compliance (OVSC) Laboratory Procedures, TP-207-09, dated June 18, 1992, and corresponding KARCO Engineering, LLC test procedure KTP-207, dated August 2, 2003. Detailed procedures for receiving, inspecting, testing and reporting of test results are described in the test procedures and are not repeated in this report.

This report is organized in sections containing pertinent test information and data tables as follows:

- Section 2 - Test Procedure and Data Summary
- Section 3 - Compliance Test Data
- Section 4 - Noncompliance Data (if applicable)
- Appendix A - Photographs
- Appendix B - Data Plots
- Appendix C - Test Equipment List and Calibration Information

SECTION 2
COMPLIANCE TEST PROCEDURE and DATA SUMMARY

2. COMPLIANCE TEST PROCEDURE AND DATA SUMMARY

A 2003 Toyota Corolla CE 4 Door Sedan was subjected to FMVSS 207 compliance testing on August 6, through August 7, 2003. All tests were conducted at KARCO Engineering, LLC in Adelanto, California. Summary data is shown on Data Sheet No. 2. The following tests were performed:

- Receiving inspection
- Aft moment tests on front seat backs
- Aft load tests on front seat frames and adjusters
- Forward load tests on front seat frames and adjusters
- Forward load tests on front seat frames and adjusters with 210 loads.
- Aft moment tests on rear seat backs
- Aft load tests on rear seat cushions and seat backs
- Forward load tests on rear seat cushions and seat backs

The tests were conducted per the FMVSS 207 test procedure. The significant aspects of the test procedure are described in the following paragraphs.

2.1 Test Vehicle Inspection. The test vehicle was inspected to verify that all seat, restraint systems and seat belt assembly anchorage systems are complete and the seat adjusting mechanisms are working properly.

2.2 Test Vehicle Preparation and Pre-test Measurements. The test vehicle was securely mounted to the test fixture and connected to the appropriate number of hydraulic actuators. Lateral spacing of the individual seat anchorages were measured and all other angular and dimensional measurements were verified to be in compliance with the requirements of the subject safety standards. The components were weighed and their centers of gravity determined.

2.3 Static Load Tests-General Performance Requirements.

When tested in accordance with S5, each occupant seat, other than a side-facing seat or a passenger seat on a bus, shall withstand the following forces:

- (a) In any position to which it can be adjusted — 20 times the weight of the seat applied in a forward longitudinal direction;

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- (b) In any position to which it can be adjusted — 20 times the weight of the seat applied in a rearward longitudinal direction;
- (c) For a seat belt assembly attached to the seat — the force specified in subparagraph (a), if it is a forward facing seat, or subparagraph (b), if it is a rearward facing seat, in each case applied simultaneously with the forces imposed on the seat by the seat belt assembly when it is loaded in accordance with section S4.2 of Federal Motor Vehicle Safety Standard No. 210; and
- (d) In its rearmost position — a force that produces a 3,300 inch-pound moment about the seating reference point (SRP) for each designated seating position (DSP) that the seat provides, applied to the upper cross-member of the seat back or the upper seat back, in a rearward longitudinal direction for forward-facing seats and in a forward longitudinal direction for rearward-facing seats.
- (e) To meet FMVSS 210 requirements, the anchorages, attachment hardware, and attachment bolts for all Type 2 and automatic seat belt assemblies that are installed to comply with Standard No. 208 (49 CFR 571.208) shall withstand 3,000 pound forces when tested in accordance with S5.2.

SECTION 3
COMPLIANCE TEST DATA

3. COMPLIANCE TEST DATA

The results of FMVSS 207 compliance tests that were conducted on the 2003 Toyota Corolla CE 4 Door Sedan on August 5, and August 7, 2003, to determine compliance with FMVSS 207, "Seating Systems" are presented in this section. No performance failures were identified for the vehicle tested.

DATA SHEET NO. 2
SEATING SYSTEM TEST RESULTS

VEHICLE			
YEAR	2003	MAKE	TOYOTA
MODEL	COROLLA CE	BODY STYLE	4 DOOR SEDAN
NHTSA NO.	C35104	VIN	1NXBR32E93Z115536
BUILD DATE	11/02	TEST DATE	08/05/03
TEST LABORATORY	KARCO ENGINEERING, L.L.C.		

LEGEND: Wa - Weight of Seat Assembly

Wb - Weight of Seat Back

Wc - Weight of Seat Cushion

Z - Distance from Seat SRP to Uppermost Crossmember = 19.0 "

FOR FRONT BUCKET SEATS - - LEFT SIDE

COMPONENT	LOAD DIRECTION	COMPONENT WEIGHT (lbs)	REQUIRED LOAD (lbs)	ACTUAL LOAD (lbs)	PEAK MOMENT (in-lbs)	ATTACHMENT (PASS/FAIL)
Seat Back	Forward	Wb = 12	20 x Wb = 240	N/A	N/A	N/A
Seat Assy.	Forward	Wa = 36	20 x Wa = 720	710.9	N/A	PASS
	Rearward	Wa = 36	20 x Wa = 720	714.0	N/A	PASS
Seat Back Moment	Rearward	N/A	3275 in-lb/Z	172.8	3283.2	PASS

FOR FRONT BUCKET SEATS - - RIGHT SIDE

COMPONENT	LOAD DIRECTION	COMPONENT WEIGHT (lbs)	REQUIRED LOAD (lbs)	ACTUAL LOAD (lbs)	PEAK MOMENT (in-lbs)	ATTACHMENT (PASS/FAIL)
Seat Back	Forward	Wb = 12	20 x Wb = 240	N/A	N/A	N/A
Seat Assy.	Forward	Wa = 36	20 x Wa = 720	713.6	N/A	PASS
	Rearward	Wa = 36	20 x Wa = 720	720.0	N/A	PASS
Seat Back Moment	Rearward	N/A	3275 in-lb/Z	170.6	3241.4	PASS

(Continued on next page)

DATA SHEET NO. 2... Continued

FOR FRONT BUCKET SEATS -- COMBINED

COMPONENT	LOAD DIRECTION	COMPONENT WEIGHT (lbs)	REQUIRED LOAD (lbs)	ACTUAL LOAD (lbs)	ATTACHMENT (PASS/FAIL)
Driver Lap Belt	Forward	N/A	3,000 lbs. -10, -50	2970.7	PASS
Driver Shoulder Belt	Forward	N/A	3,000 lbs. -10, -50	2977.5	PASS
Center Lap Belt	Forward	N/A	5,000 lbs. -10, -50	N/A	N/A
Passenger Lap Belt	Forward	N/A	3,000 lbs. -10, -50	2970.9	PASS
Passenger Shoulder Belt	Forward	N/A	3,000 lbs. -10, -50	2994.0	PASS
Driver Seat Assembly	Forward	Wa = 36	20 x Wa = 720	719.2	PASS
Passenger Seat Assembly	Forward	Wa = 36	20 x Wa = 720	717.9	PASS

LEGEND: Wa - Weight of Seat Assembly

Wb - Weight of Seat Back

Wc - Weight of Seat Cushion

Z - Distance from Seat SRP to Uppermost Crossmember = 19.0 "

FOR REAR SEATS --

COMPONENT	LOAD DIRECTION	COMPONENT WEIGHT (lbs)	REQUIRED LOAD (lbs)	ACTUAL LOAD (lbs)	PEAK MOMENT (in-lbs)	ATTACHMENT (PASS/FAIL)
Left Cushion	Forward	Wc = 12	20 x Wc = 240	234.6	N/A	PASS
Left Back	Forward	Wb = 10	20 x Wb = 200	197.3	N/A	PASS
Left Cushion	Rearward	Wc = 12	20 x Wc = 240	236.4	N/A	PASS
Left Back	Rearward	Wb = 10	20 x Wb = 200	199.9	N/A	PASS
Seat Back Moment	Rearward	N/A	3275 in-lb/Z	N/A	N/A	N/A
Right Cushion	Forward	Wc = 12	20 x Wc = 240	234.6	N/A	PASS
Right Back	Forward	Wb = 14	20 x Wb = 280	271.3	N/A	PASS
Right Cushion	Rearward	Wc = 12	20 x Wc = 240	236.4	N/A	PASS
Right Back	Rearward	Wb = 14	20 x Wb = 280	277.8	N/A	PASS
Seat Back Moment	Rearward	N/A	3275 in-lb/Z	N/A	N/A	N/A

(Continued on next page)

DATA SHEET NO. 2.... Continued
FOR REAR SEATS - - COMBINED

COMPONENT	LOAD DIRECTION	COMPONENT WEIGHT (lbs)	REQUIRED LOAD (lbs)	ACTUAL LOAD (lbs)	ATTACHMENT (PASS/FAIL)
Left Lap Belt	Forward	N/A	3,000 lbs, -10, -50	N/A	N/A
Left Shoulder Belt	Forward	N/A	3,000 lbs, -10, -50	N/A	N/A
Left Rear Seat Back	Forward	Wa = N/A	20 x Wa = N/A	N/A	N/A
Center Lap Belt	Forward	N/A	3,000 lbs, -10, -50	N/A	N/A
Center Shoulder Belt	Forward	N/A	3,000 lbs, -10, -50	N/A	N/A
Right Lap Belt	Forward	N/A	3,000 lbs, -10, -50	N/A	N/A
Right Shoulder Belt	Forward	N/A	3,000 lbs, -10, -50	N/A	N/A
Right Rear Seat Back	Forward	Wa = N/A	20 x Wa = N/A	N/A	N/A

COMMENTS:

RECORDED BY: MARK A. KRATZKE DATE: 08/05/03

APPROVED BY: MATTHEW A. IVORY DATE: 08/05/03

**DATA SHEET NO. 3
SEAT BACK ANGLES**

VEHICLE			
YEAR	2003	MAKE	TOYOTA
MODEL	COROLLA CE	BODY STYLE	4 DOOR SEDAN
NHTSA NO.	C35104	VIN	1NXBR32E93Z115536
BUILD DATE	11/02	TEST DATE	08/05/03
TEST LABORATORY	KARCO ENGINEERING, L.L.C.		

LAP BELT ANCHORAGES:

SEAT	SEATING POSITION	SPECIFIED ANGLE RANGE ABOVE HORIZONTAL	MEASURED ANGLE		DOES BELT SECURELY FIT ON PELVIS?
			I/B	O/B	
FRONT	Left	30 to 75 degrees	70°	70°	YES
	Center	30 to 75 degrees	N/A	N/A	N/A
	Right	30 to 75 degrees	68°	70°	YES
REAR	Left	30 to 75 degrees	N/A	N/A	N/A
	Center	30 to 75 degrees	N/A	N/A	N/A
	Right	30 to 75 degrees	N/A	N/A	N/A

SHOULDER BELT ANCHORAGES:

SEAT	SEATING POSITION	SPECIFIED ANGLE RANGE ABOVE OR BELOW HORIZONTAL	MEASURED ANGLE
FRONT	Left	0 – 80 degrees above	42°
		0 – 40 degrees below	N/A
	Right	0 – 80 degrees above	40°
		0 – 40 degrees below	N/A
REAR	Left	0 – 80 degrees above	N/A
		0 – 40 degrees below	N/A
	Center	0 – 80 degrees above	N/A
		0 – 40 degrees below	N/A
	Right	0 – 80 degrees above	N/A
		0 – 40 degrees below	N/A

RECORDED BY: MARK A. KRATZKE DATE: 08/05/03

APPROVED BY: MATTHEW A. IVORY DATE: 08/05/03

DATA SHEET NO. 4**REPORT OF VEHICLE CONDITION AT THE COMPLETION OF TESTING**

The following vehicle has been subjected to compliance testing for FMVSS No. 207

VEHICLE			
NHTSA NO.	C35104	TEST DATE	08/05/03
CONTRACT NO.	DTNH22-01-C-31025	VIN	1NXBR32E93Z115536
SEAT CONFIGURATION			
VEHICLE OR SEAT MANUFACTURER	NEW UNITED MOTOR MANUFACTURING		
TEST LABORATORY	KARCO ENGINEERING, L.L.C.		

The vehicle was inspected upon arrival at the laboratory for the test and found to contain all of the equipment listed below. All variances have been reported within 2 working days of vehicle arrival, by letter, to the NHTSA Industrial Property Manager (NAD-30), with a copy to the OVSC COTR. The vehicle is again inspected, after the above test has been conducted, and all changes are noted below. The final condition of the vehicle is also noted in detail.

TEST VEHICLE INFORMATION			
Manufacturer	New United Motor	VIN	1NXBR32E93Z115536
Manufacturing Date	11/02	Delivery Date	03/24/03
Dealer	SOUTARS TOYOTA	NHTSA No.	C35104
Odometer Reading (mi.)	162	Fuel Type	GAS
Engine Displacement	1.8 LITERS	Cylinders	6
Transmission	AUTOMATIC	Final Drive	REAR
Engine Placement	TRANSVERSE	Color	BLUE
Tire Press./Max. Cap. Front	30 psi	Cold Tire Press.	33 psi
Tire Press./Max. Cap. Rear	30 psi	Cold Tire Press. Rear	33 psi
Recommend Tire Size	P185/65 R15	Type of Spare	T125/70 R16
Tire Size on Vehicle	P185/65 R15	Manufacturer	UNIROYAL
GVWR	3585 lbs.	Cargo Capacity	582 lbs.
GAWR Front	1885 lbs.	GAWR Rear	1720 lbs.
Air Conditioning	YES	Power Steering	YES
Power Brakes	YES	AM/FM/Cassette	YES
Disc Brakes (Front)	YES	Disc Brakes (Rear)	NO
Power Windows	NO	Tilt Steering	YES
Anti-lock Brakes (ABS)	YES	Power Seats	NO
Driver Airbag	YES	Passenger Airbag	YES

TEST VEHICLE ATTITUDE (mm)

ATTITUDE	LF	RF	LR	RR
As Delivered	590	592	588	591
As Tested	590	592	588	591

Test Vehicle Condition: **FRONT OF VEHICLE WAS REMOVED, SEATS WERE TESTED.**

RECORDED BY: MARK A. KRATZKE DATE: 08/05/03

APPROVED BY: MATTHEW A. IVORY DATE: 08/05/03

APPENDIX A
PHOTOGRAPHS



Figure A-1: Left Front (as Received)

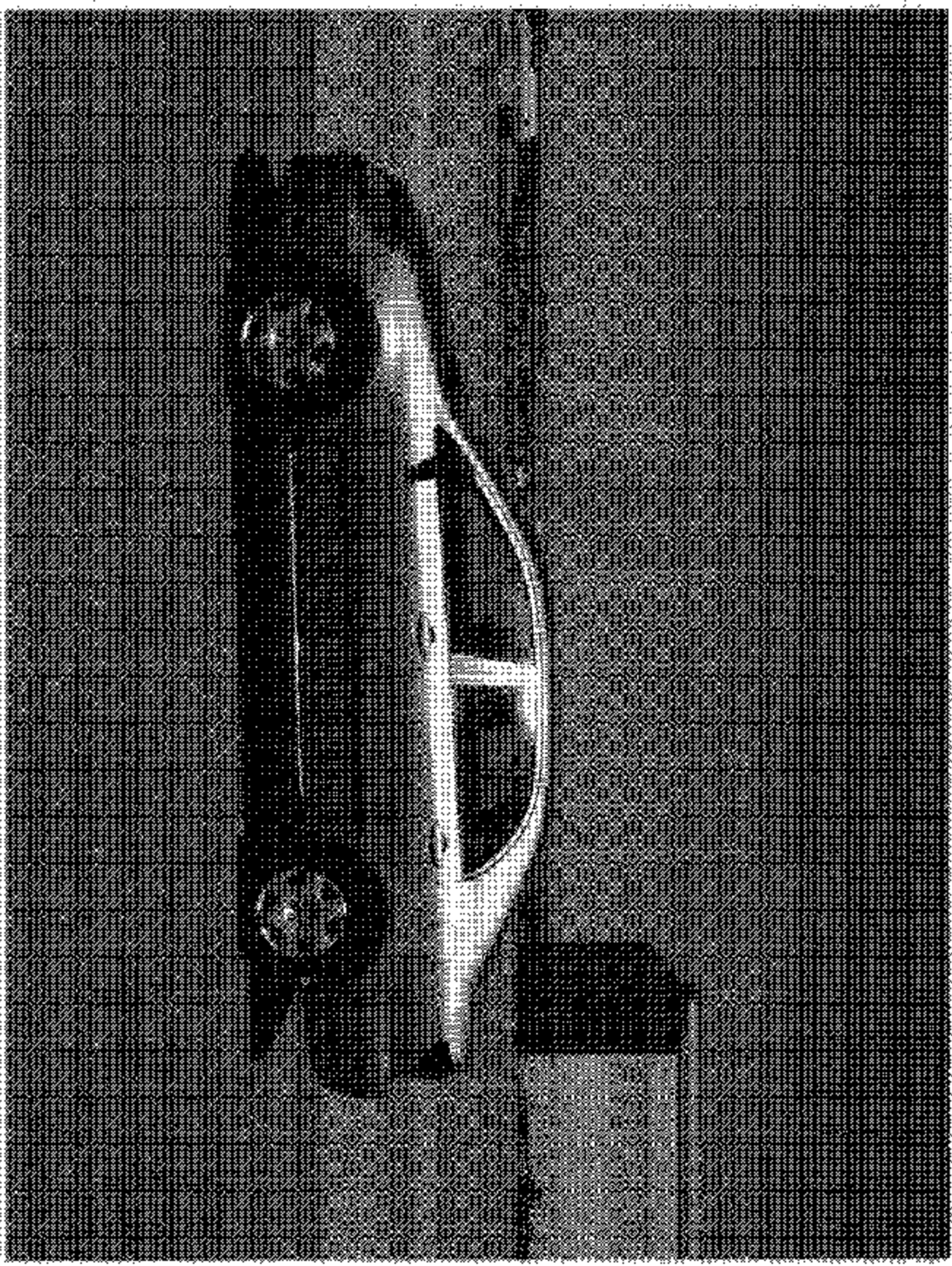


Figure A-2: Left Side (as Received)

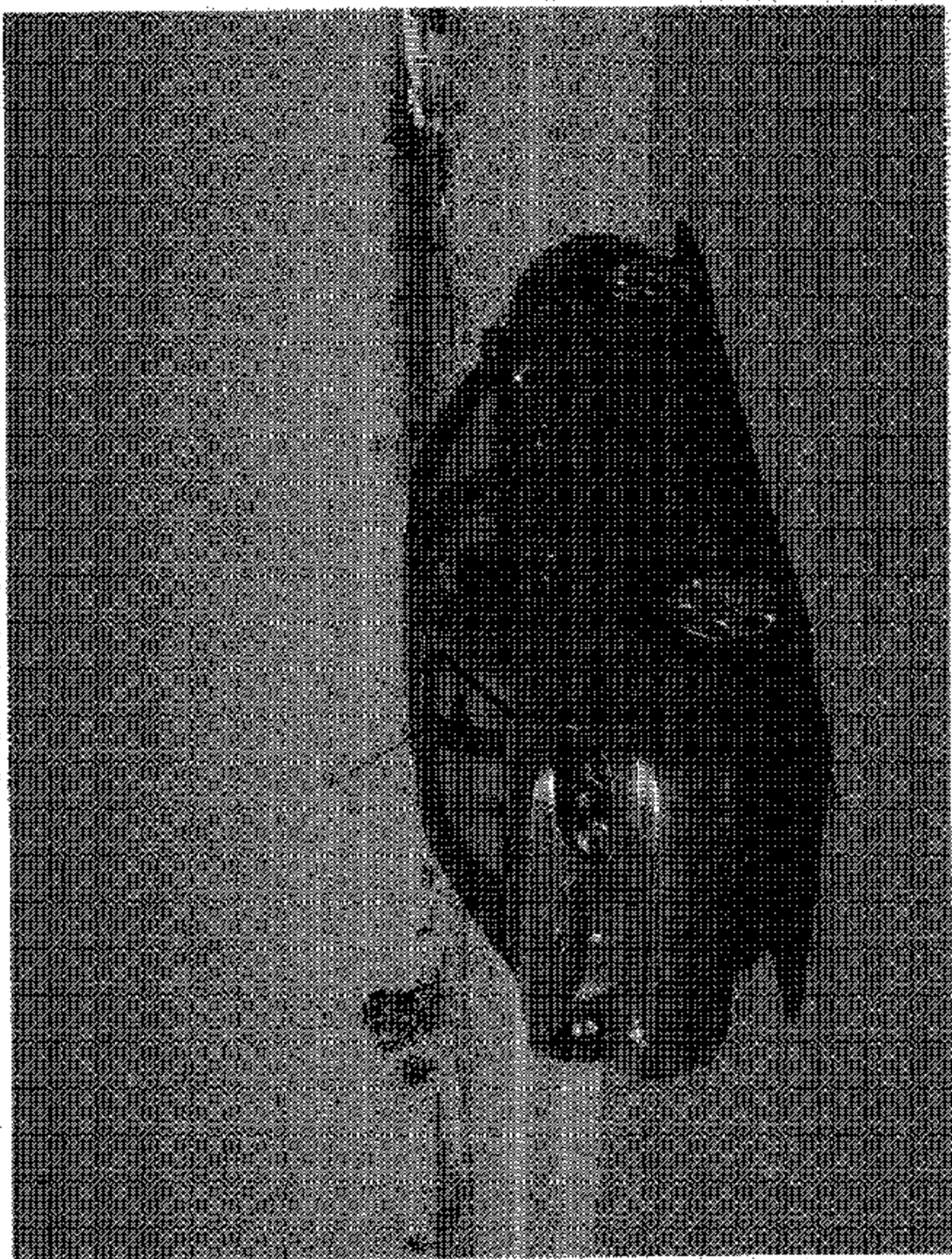


Figure A-3: Right Rear (as Received)

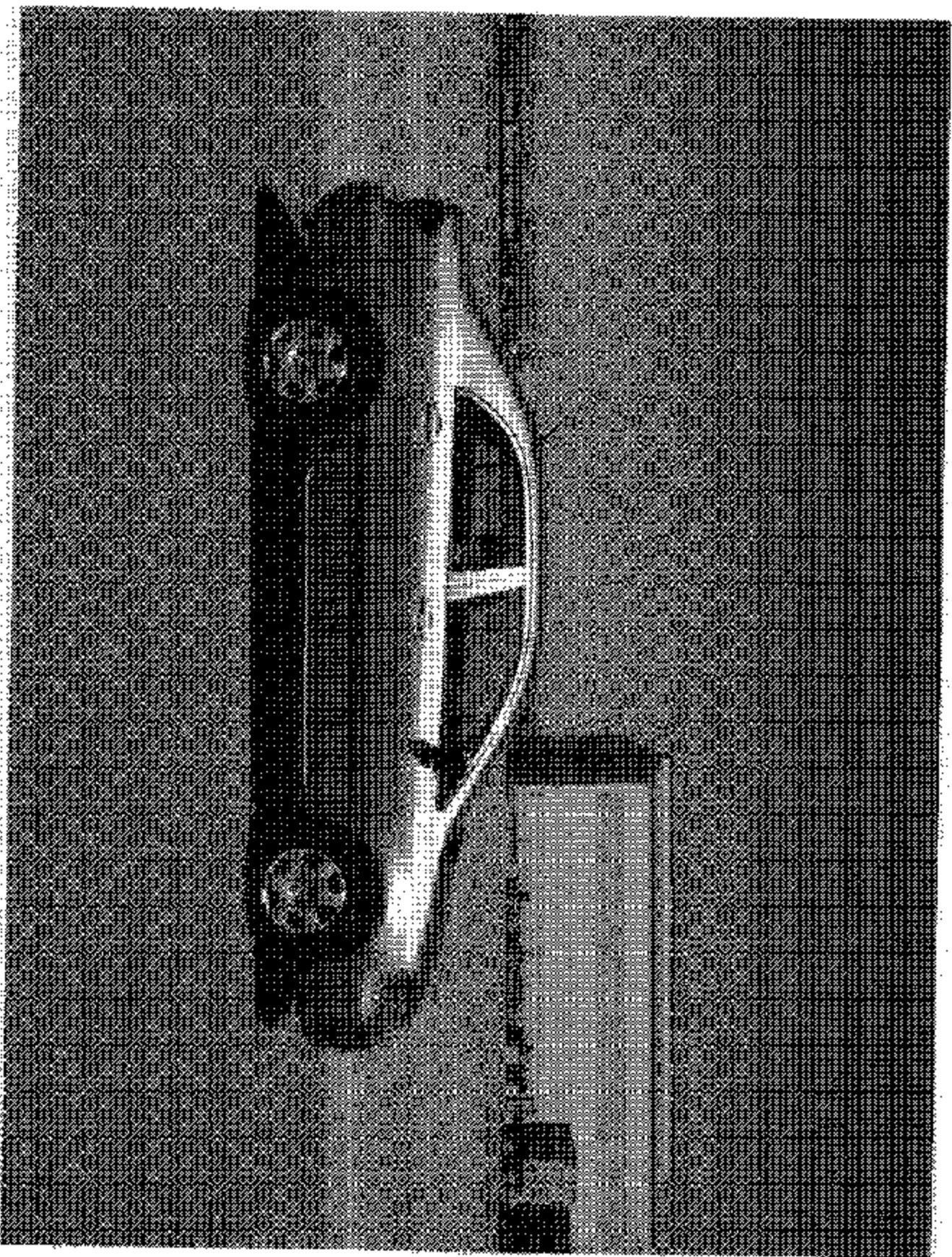


Figure A-4: Right Side (as Received)



Figure A-7: Vehicle Mounted in Test Fixture

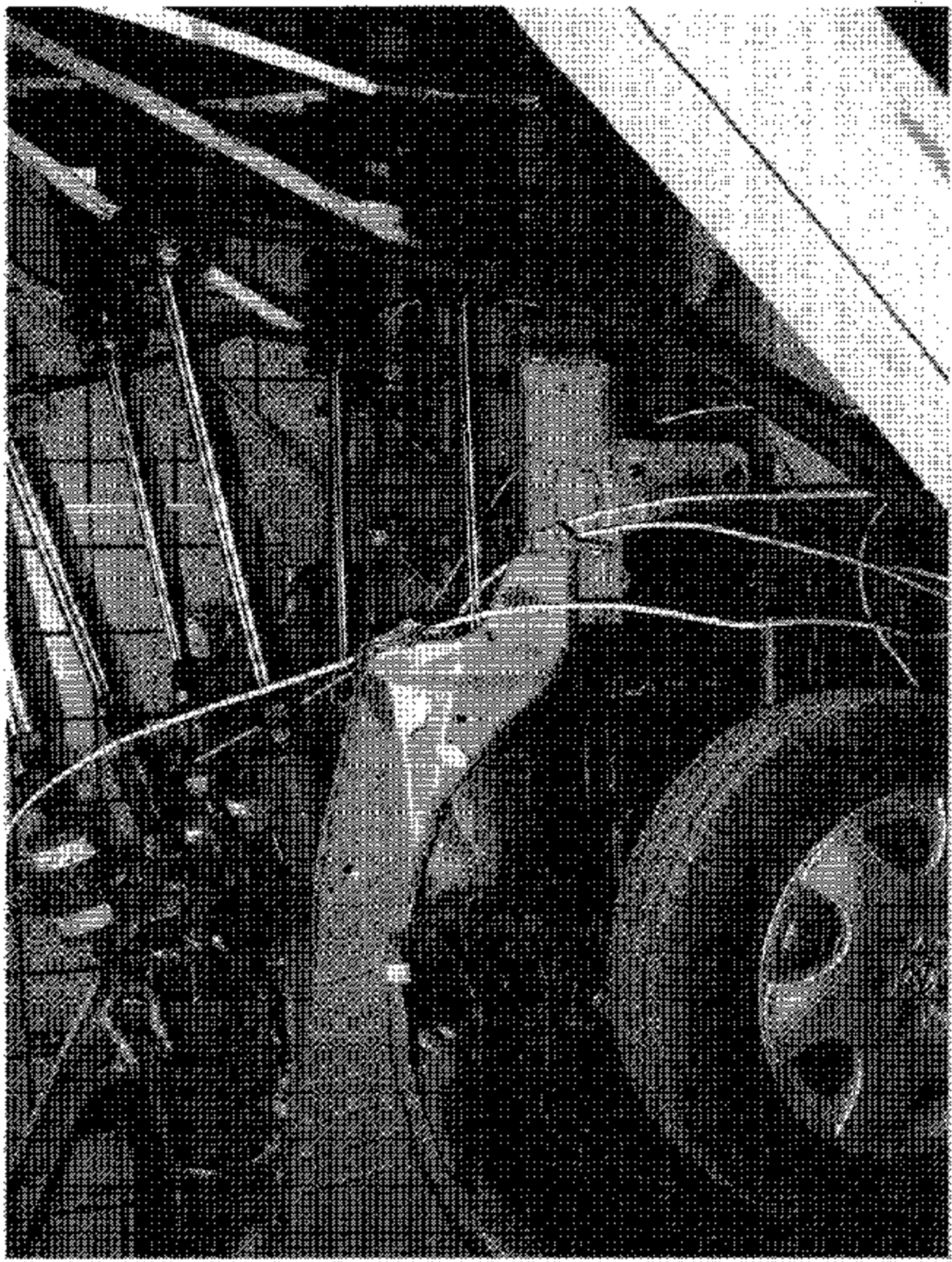


Figure A-8. Vehicle Mounted in Test Fixture

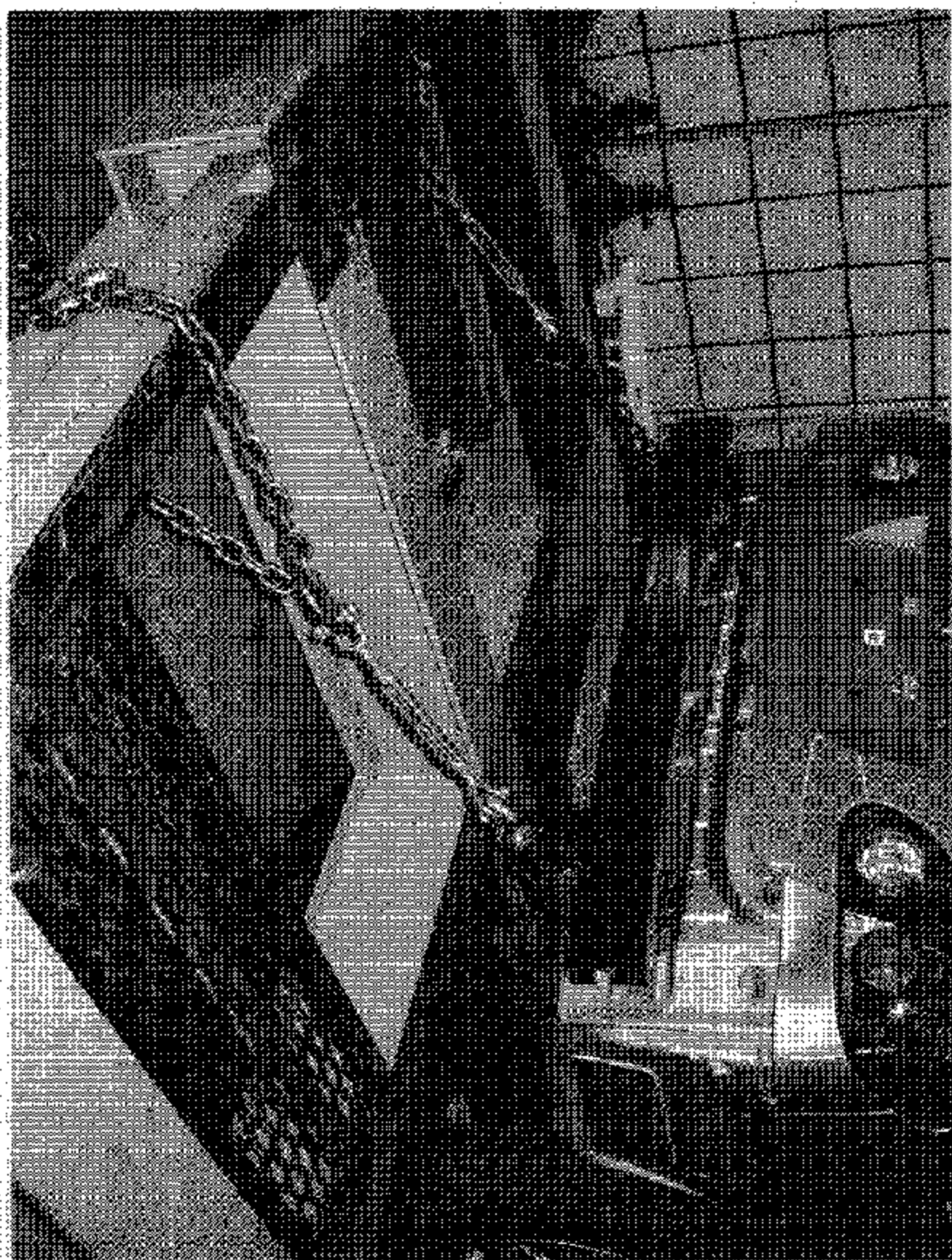


Figure A-9: Vehicle Mounted in Test Fixture

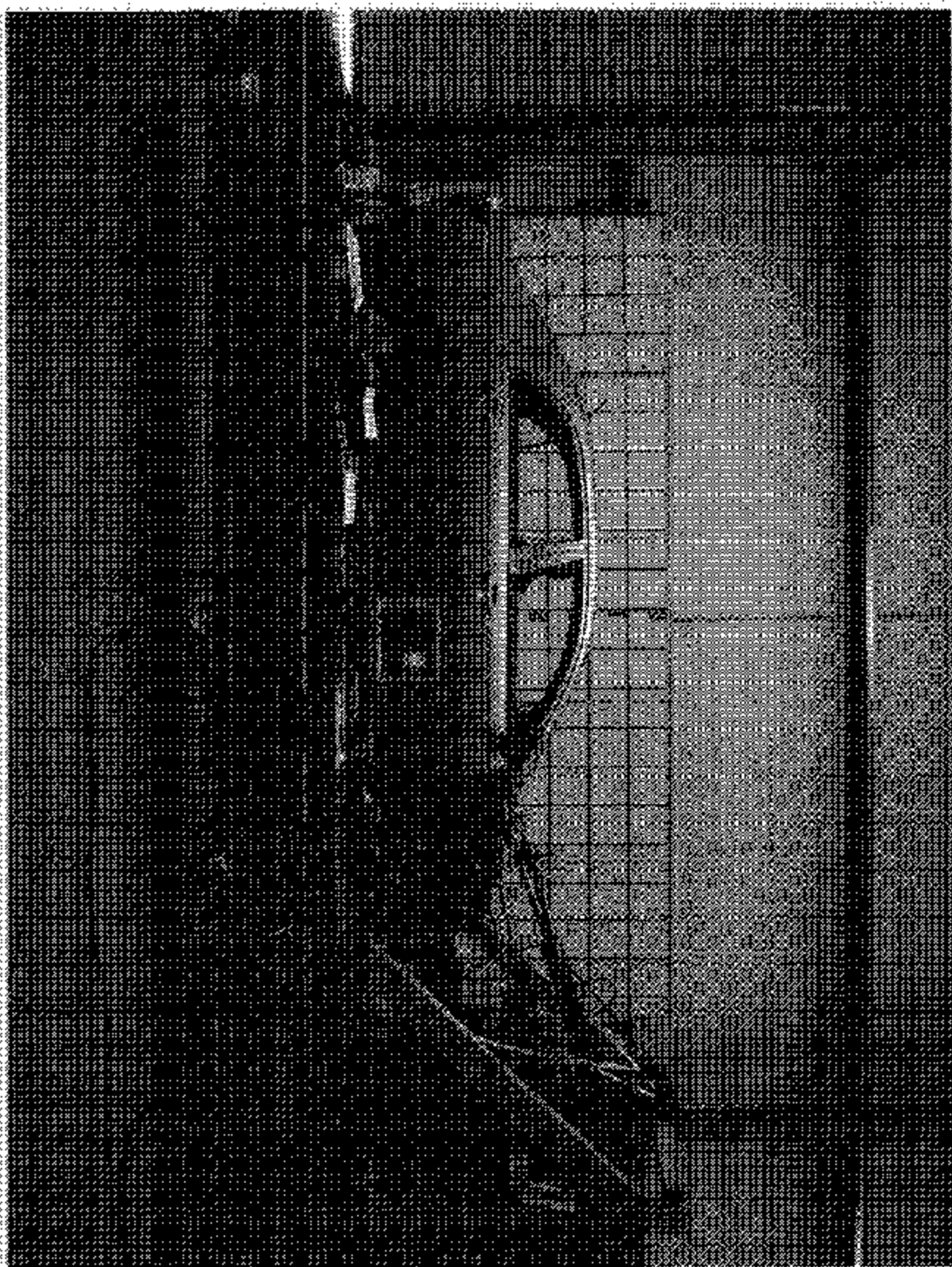


Figure A-10: Vehicle Mounted in Test Fixture

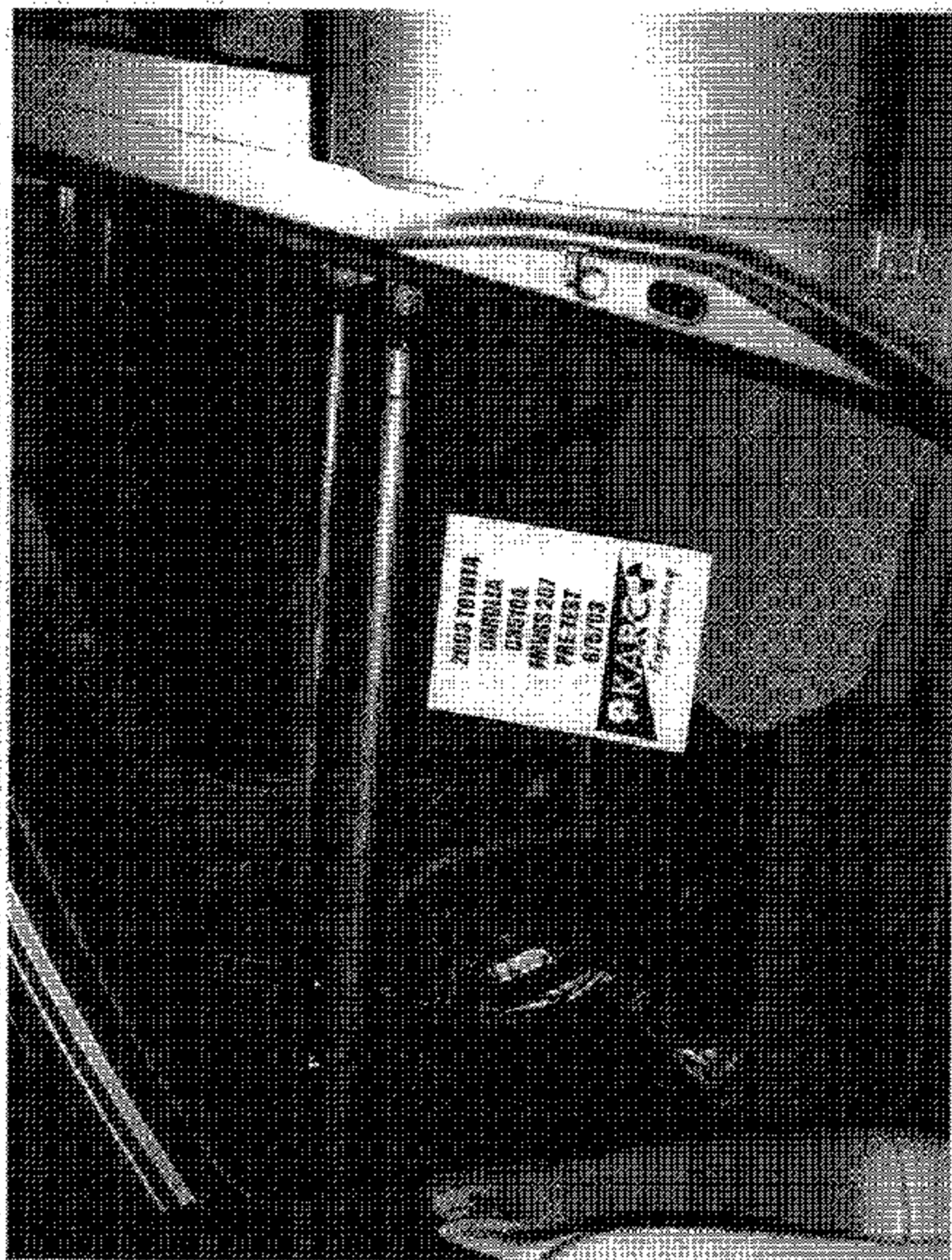


Figure A-11: Aft Moment on Seat Frame and Adjusters, Driver's Side, Pre-Test

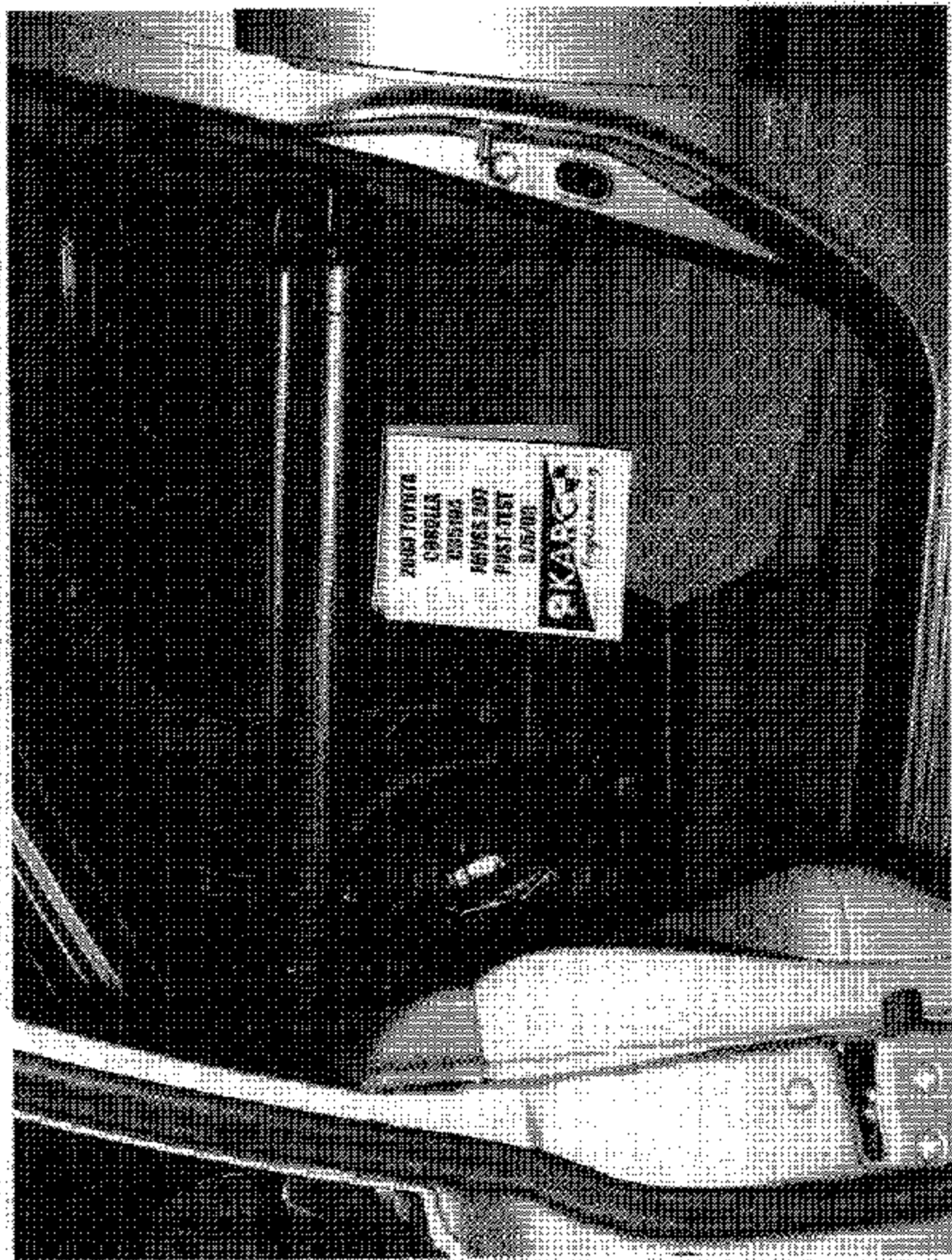


Figure A-12: Air Moment on Seat Frame and Adjusters, Driver's Side, Post-Test

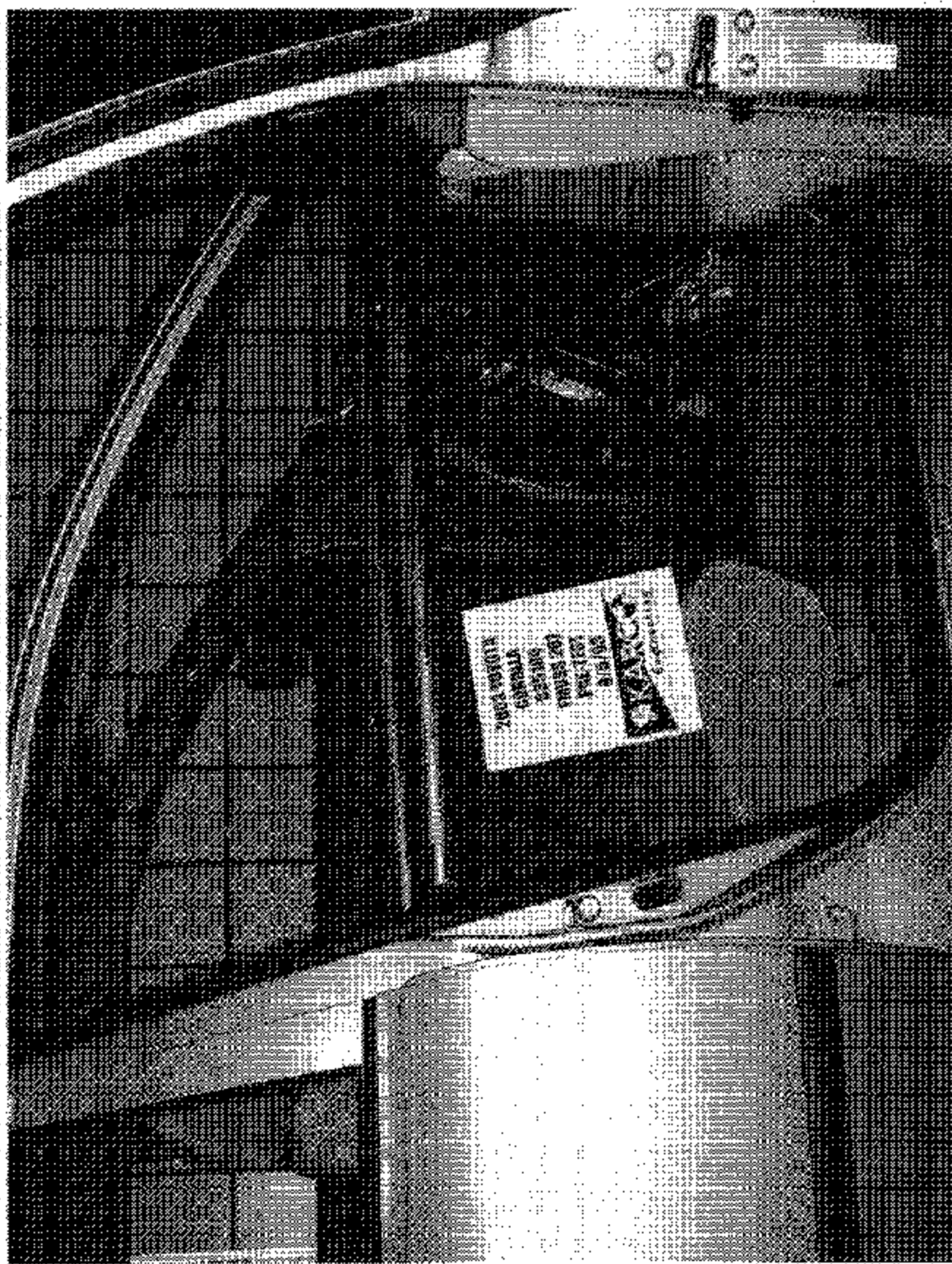


Figure A-13. Aft Moment on Seat Frame and Adjusters, Passenger's Side, Pre-Test

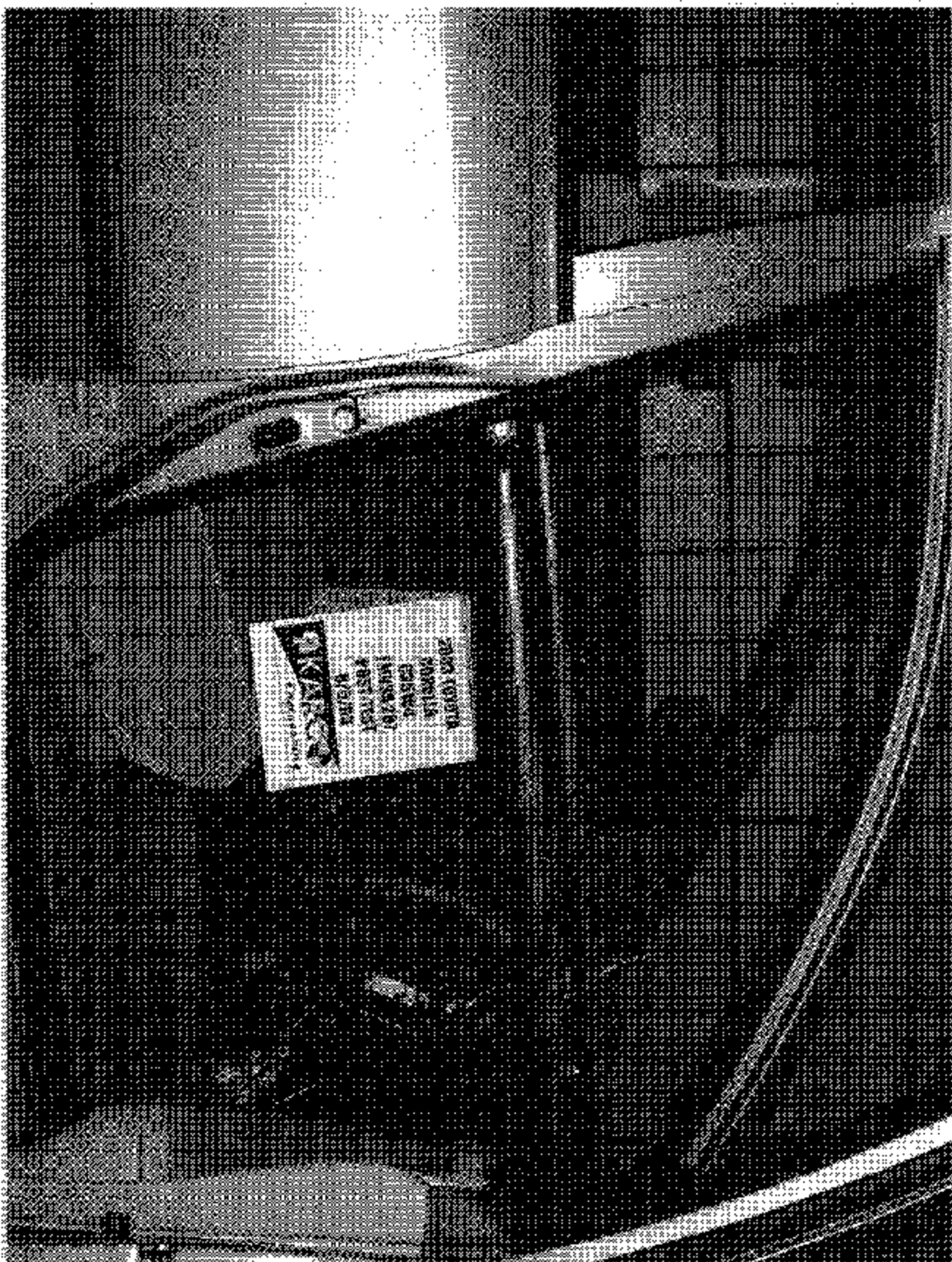


Figure A-14: Air Moment on Seat Frame and Adjusters, Passenger's Side, Post-Test

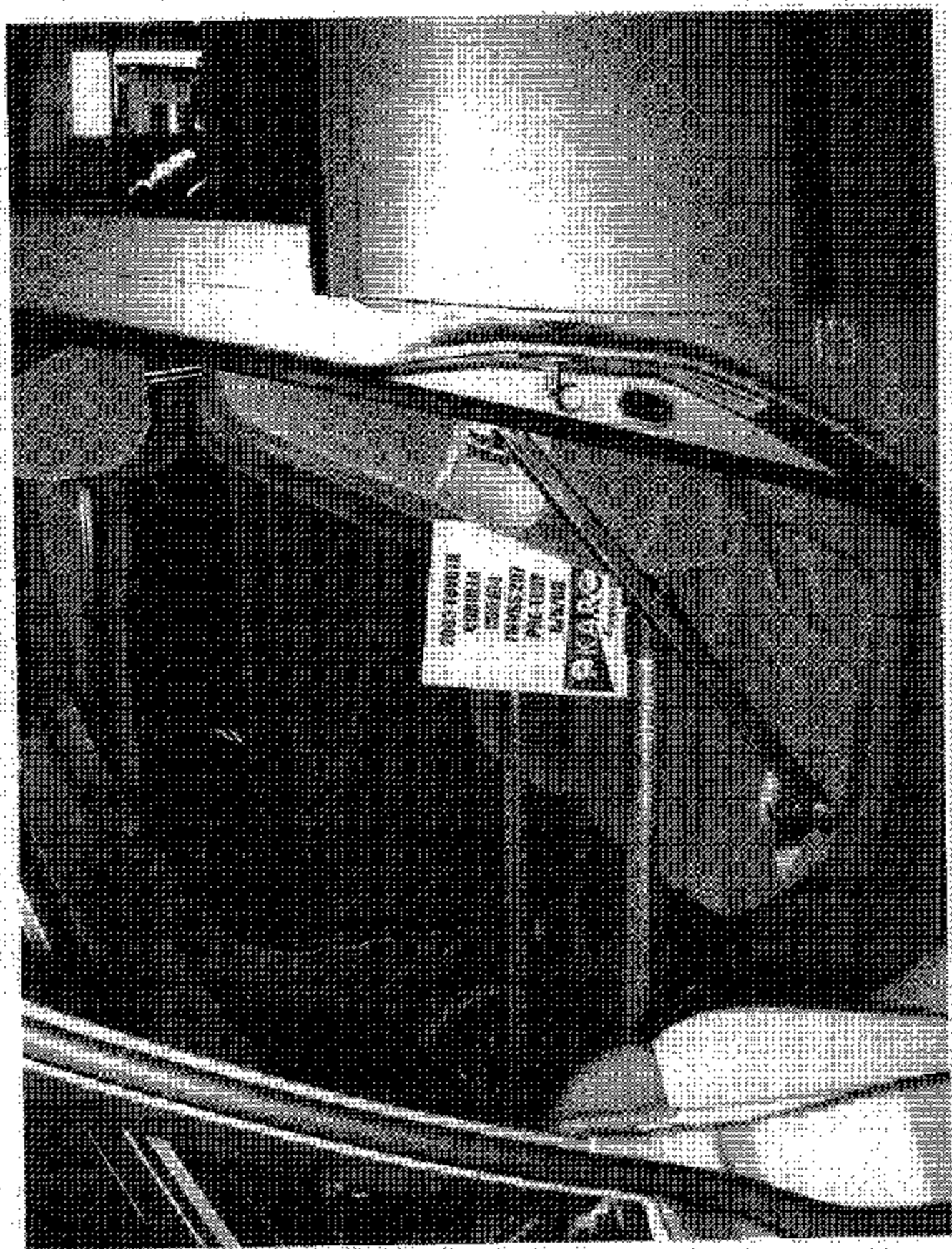


Figure A-15: Alt Load on Seat Frame and Adjusters, Driver's Side, Pre-Test

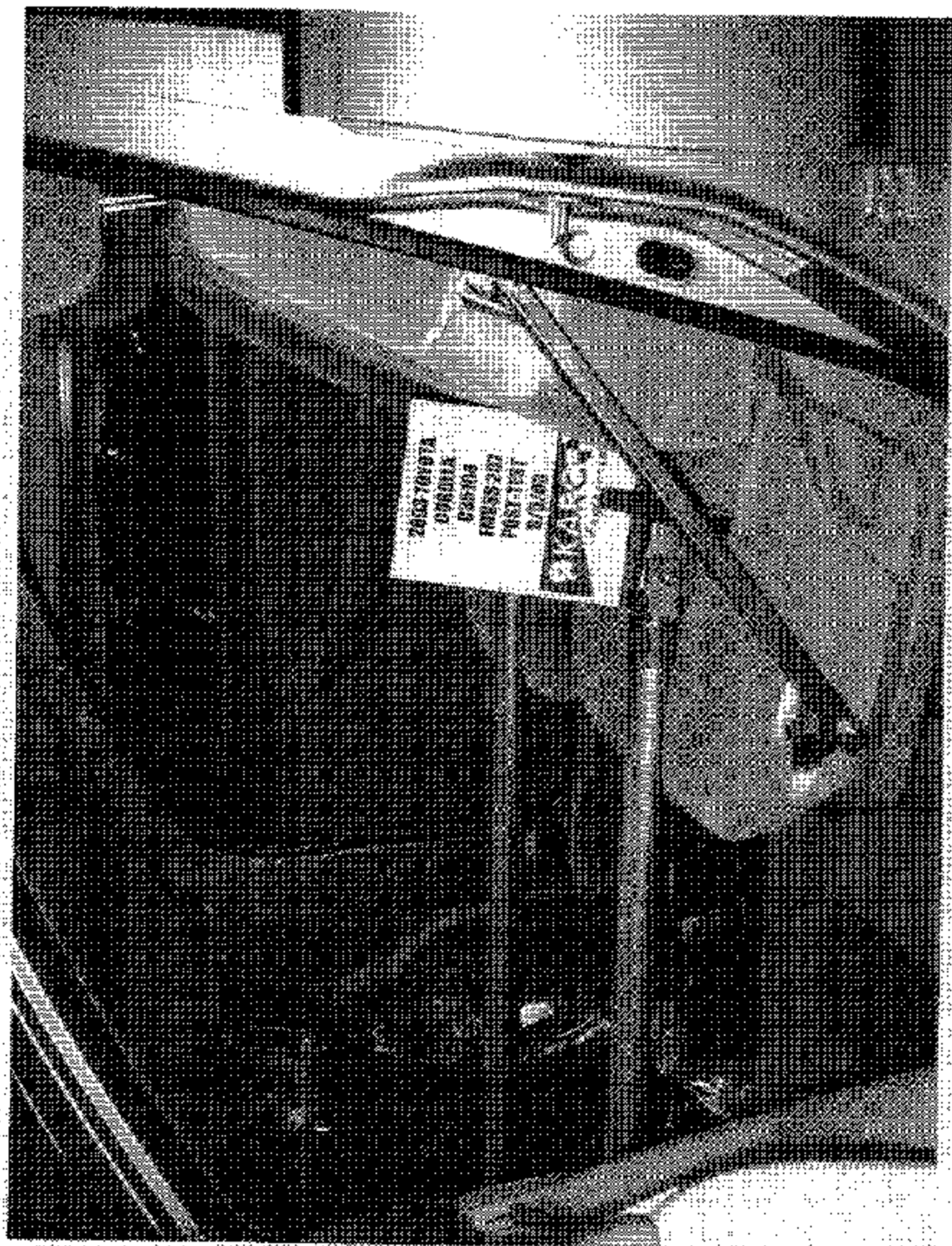


Figure A-16: Alt Load on Seat Frame and Adjusters, Driver's Side, Post-Test

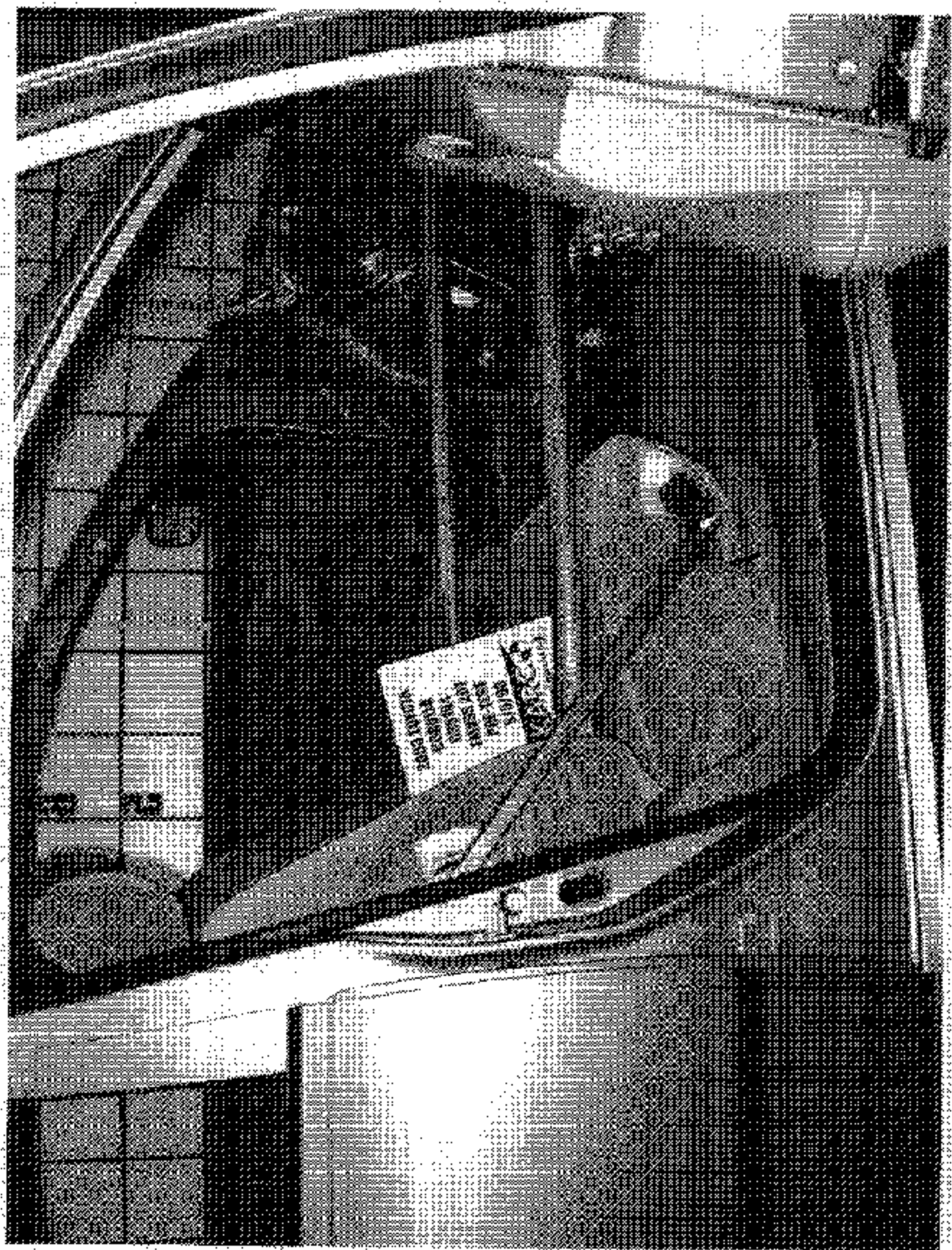


Figure A-17: Aft Load on Seat Frame and Adjusters, Passenger's Side, Pre-Test

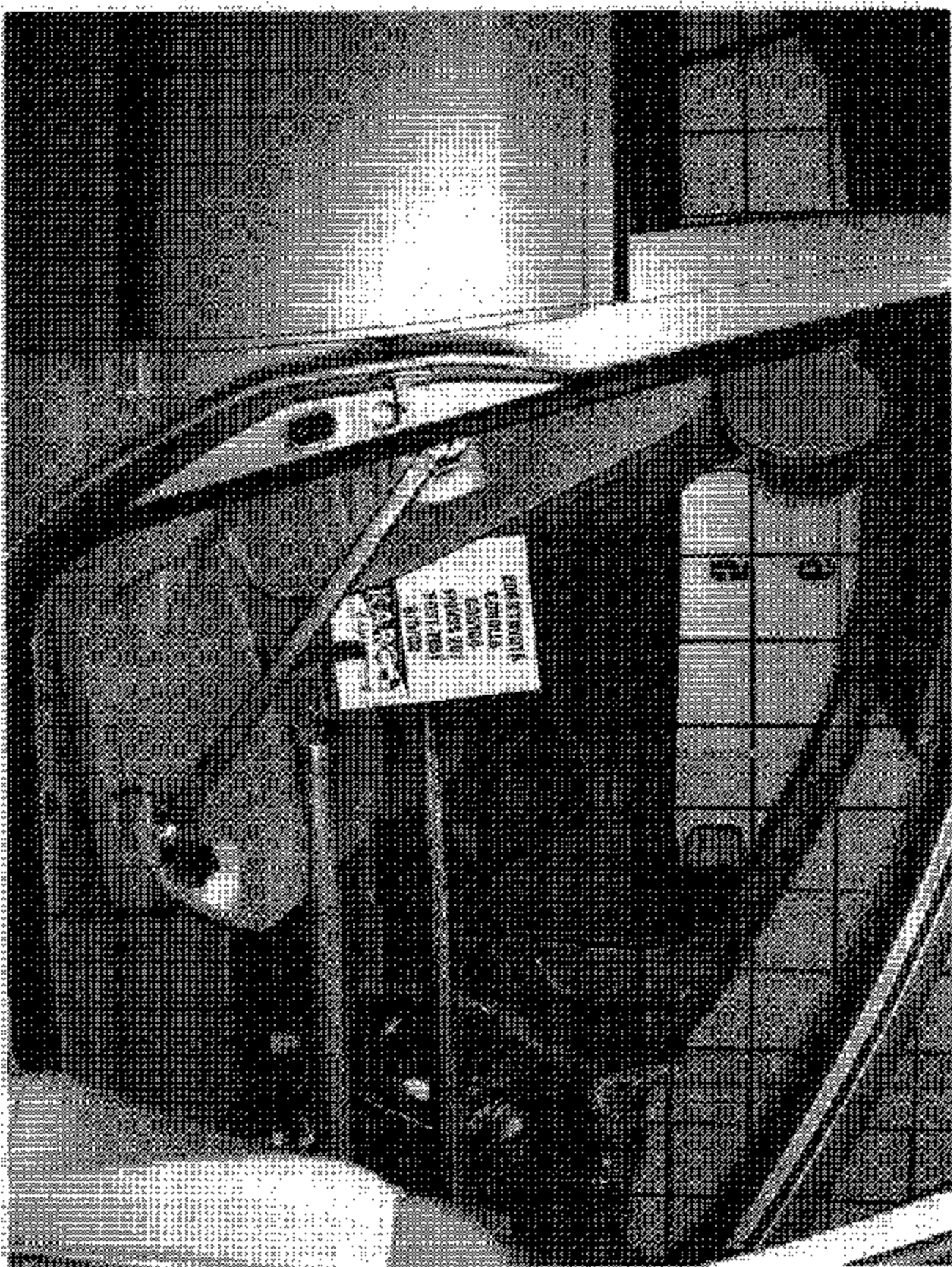


Figure A-18. Alt Load on Seat Frame and Adjusters, Passenger's Side, Post-Test

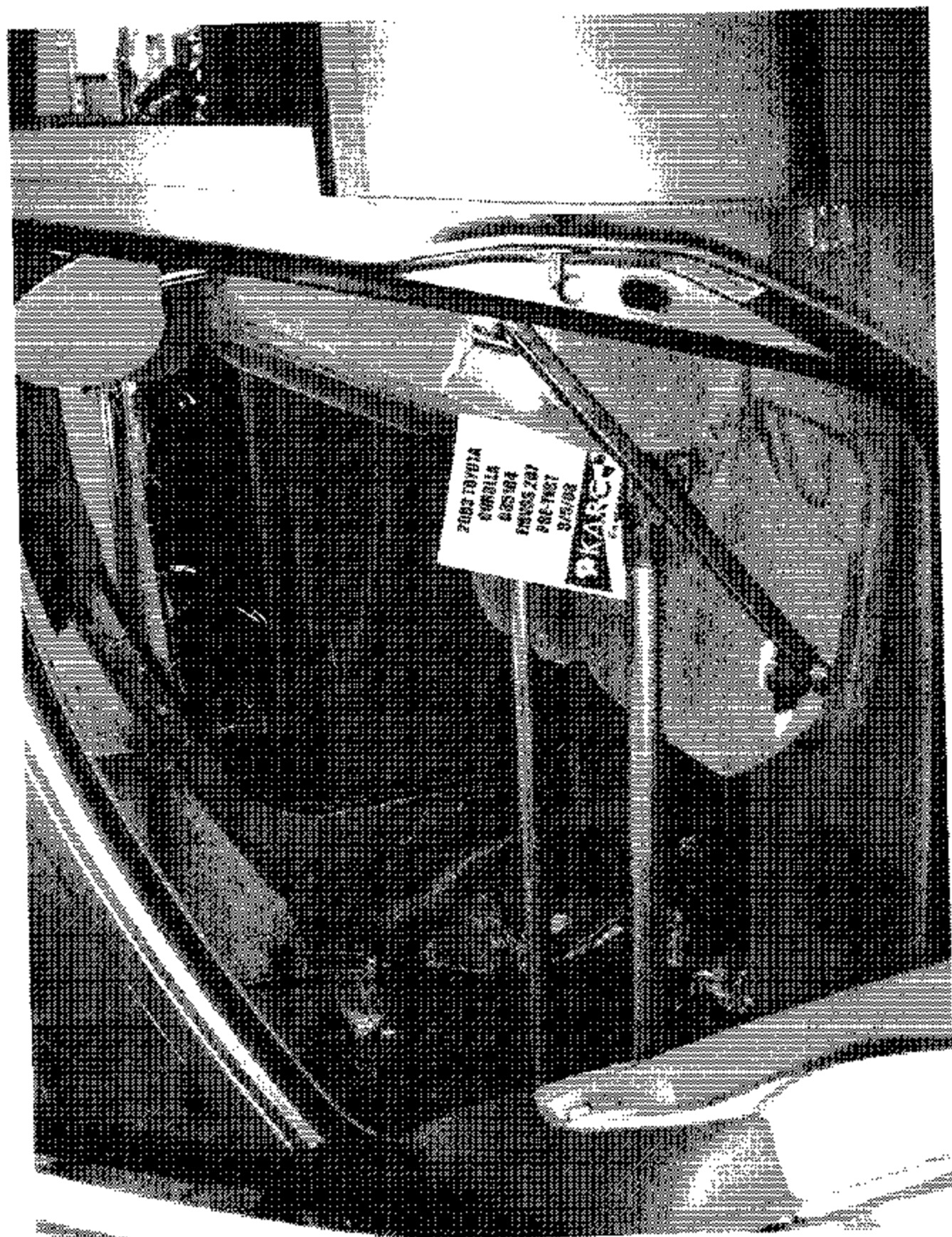


Figure A-19: Forward Load on Seat Frame and Adjusters, Driver's Side, Pre-Test



Figure A-20: Forward Load on Seat Frame and Adjusters, Driver's Side, Post-Test

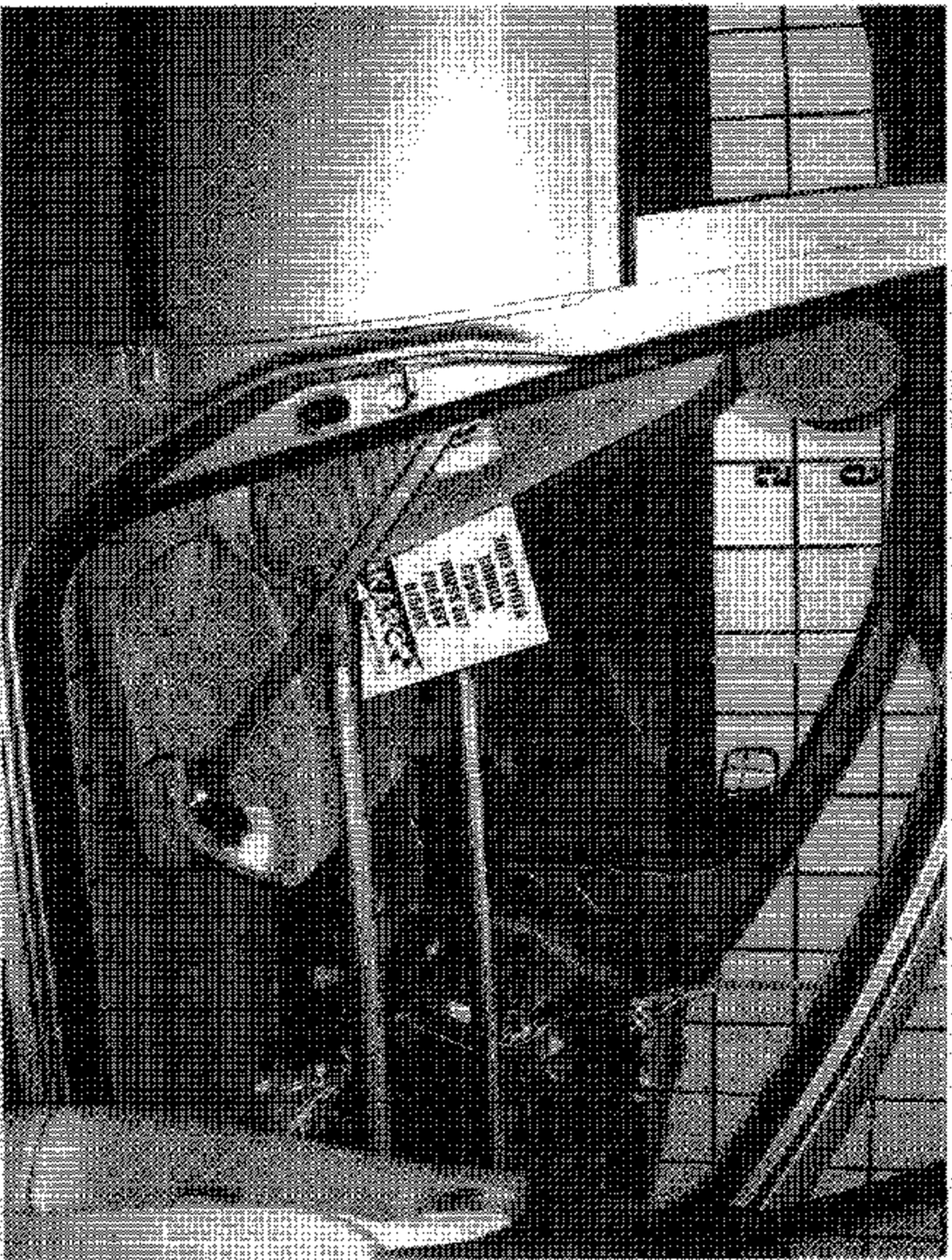


Figure A-21: Forward Load on Seat Frame and Adjusters, Passenger's Side, Pre-Test

Figure A-22: Forward Load on Seat Frame and Adjusters, Passenger's Side, Post-Test

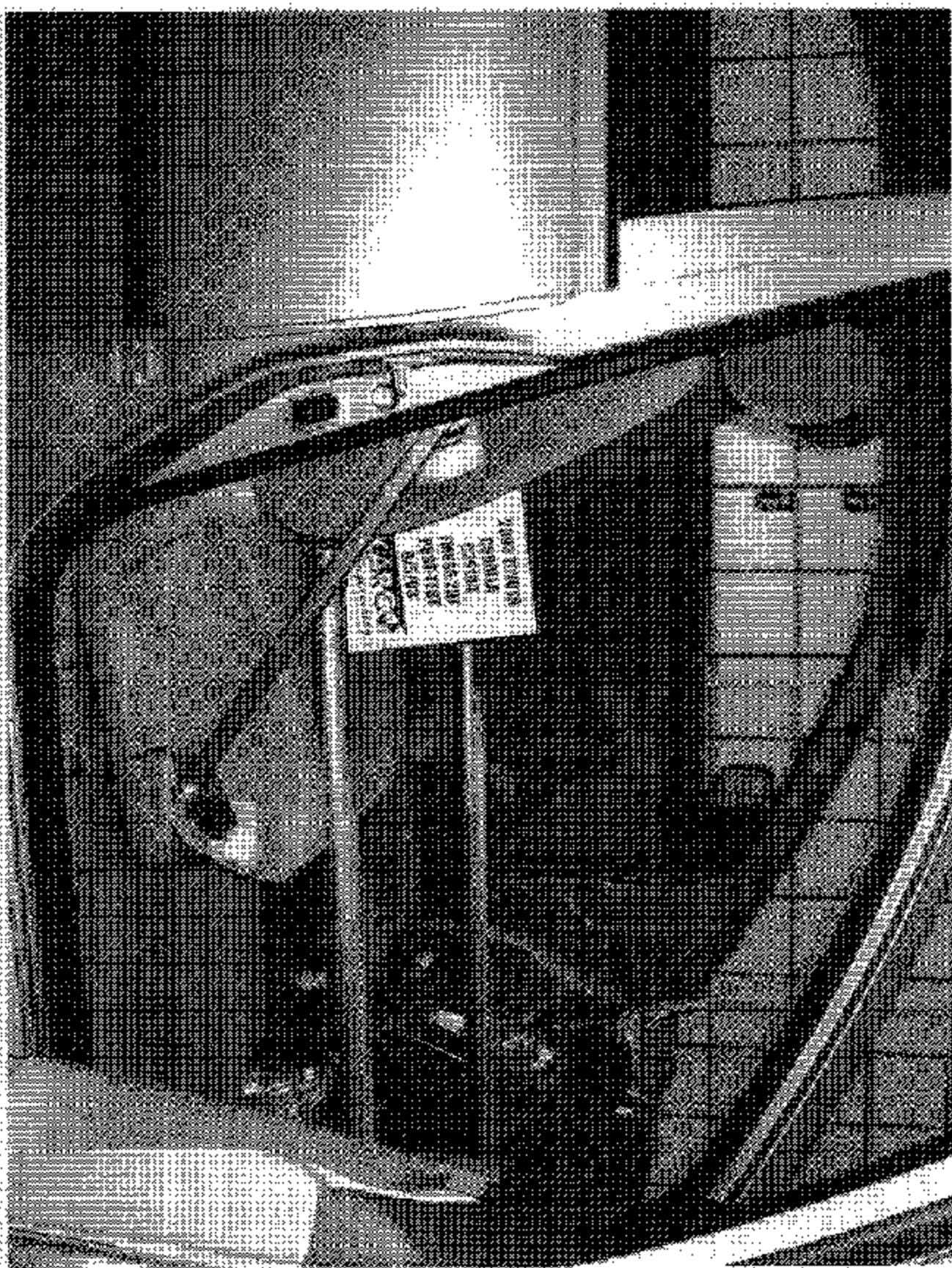




Figure A-23: 207/210 Forward Load on Seat Frame and Adjusters, Driver's Side, Pre-Test



Figure A-24: 207/210 Forward Load on Seat Frame and Adjusters, Driver's Side, Post-Test

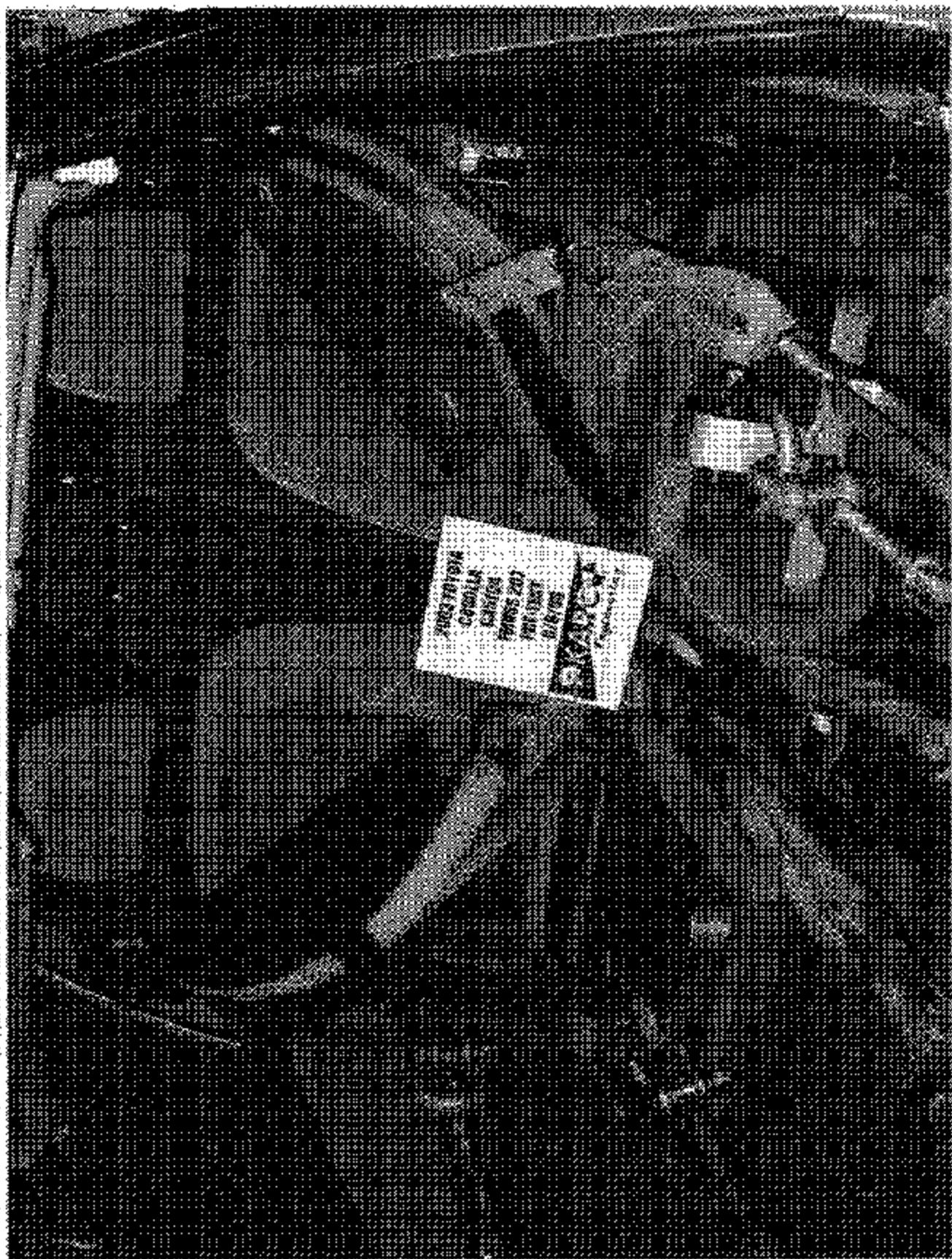


Figure A-25: 2007/210 Forward Load on Seat Frame and Adjusters, Driver's Side, Pre-Test



Figure A-26: 207/210 Forward Load on Seat Frame and Adjusters, Driver's Side, Post-Test



Figure A-27: 207/210 Forward Load on Seat Frame and Adjusters, Passenger's Side, Pre-Test



Figure A-28: 207/210 Forward Load on Seat Frame and Adjusters, Passenger's Side, Post-Test



Figure A-29: 207/210 Forward Load on Seat Frame and Adjusters, Passenger's Side, Pre-Test



Figure A-30: 207/210 Forward Load on Seat Frame and Adjusters, Passenger's Side, Post-Test

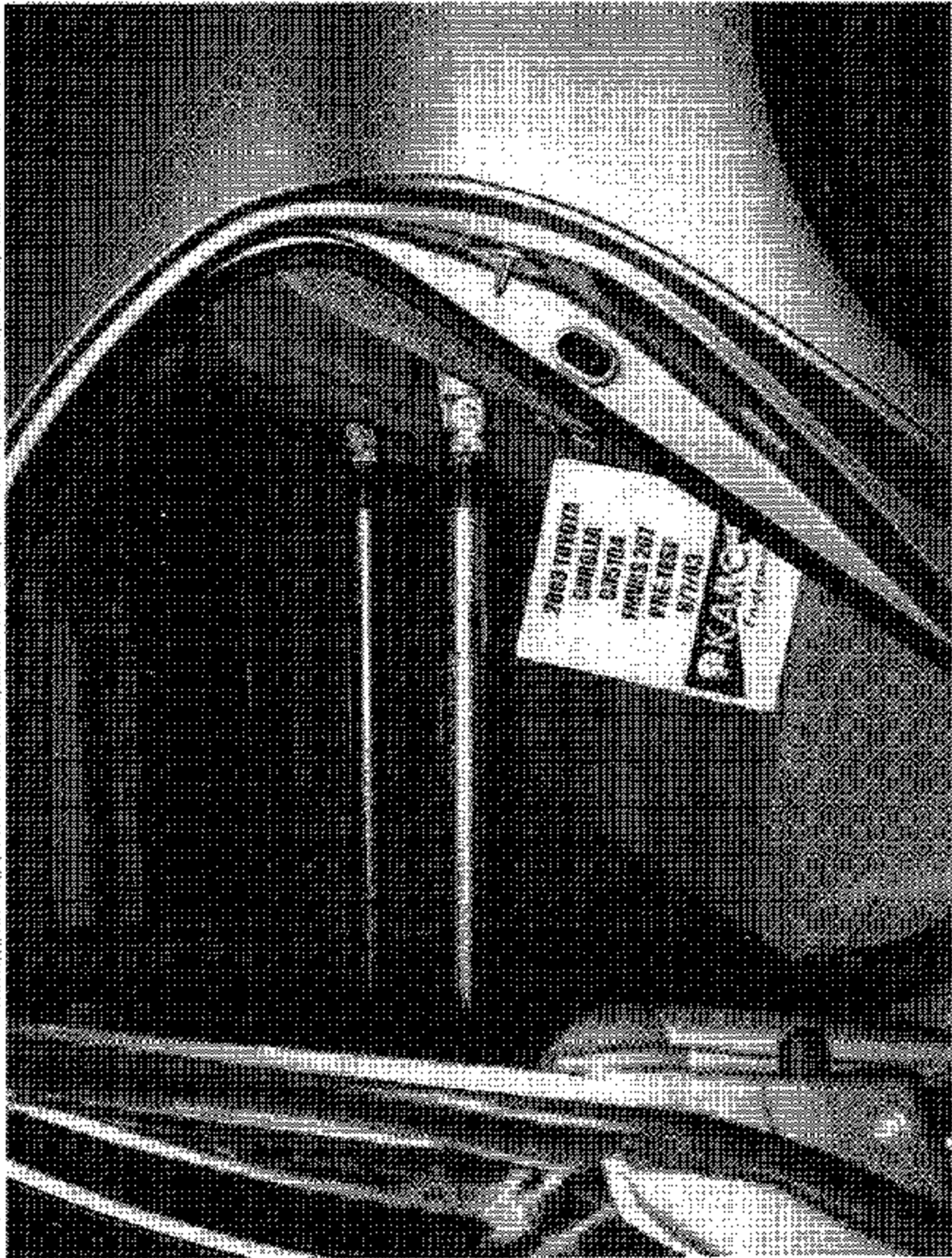


Figure A-31: Aft Load on Seat Frame and Adjusters, Driver's Side Rear, Pre-Test

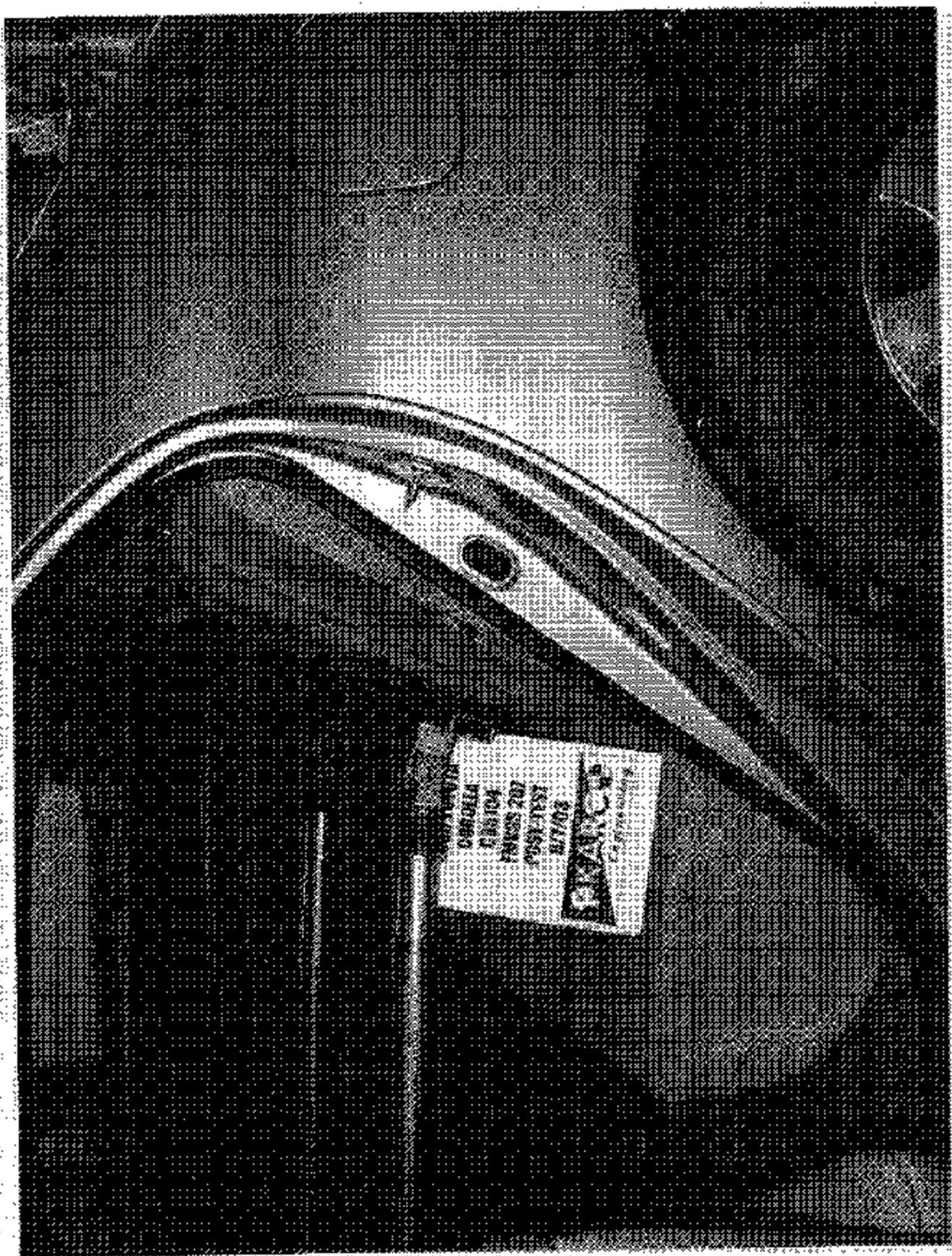


Figure A-32: Air Load on Seat Frame and Adjusters, Driver's Side Rear. Post-Test

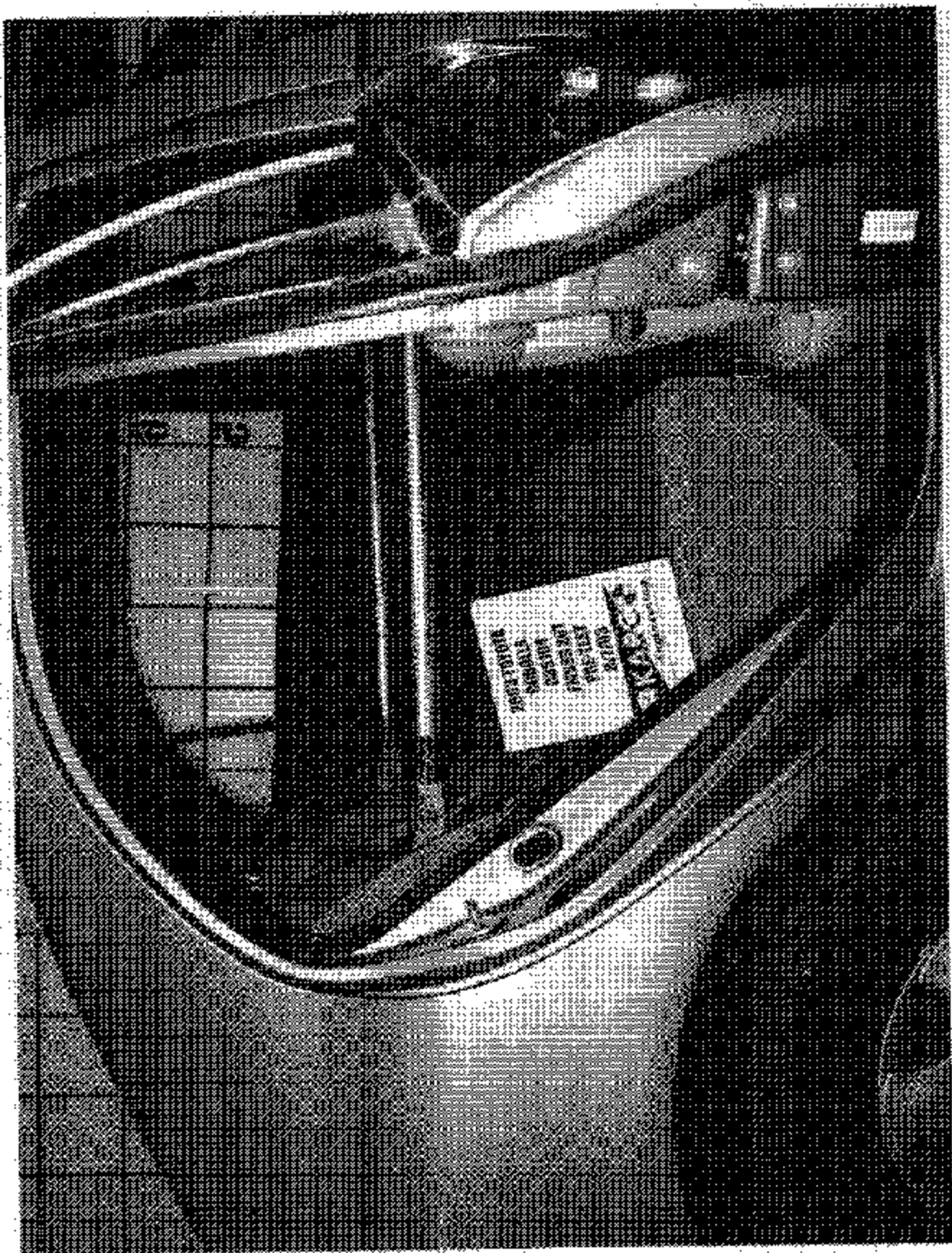


Figure A-33: Aft Load on Seat Frame and Adjusters, Passenger's Side Rear, Pre-Test

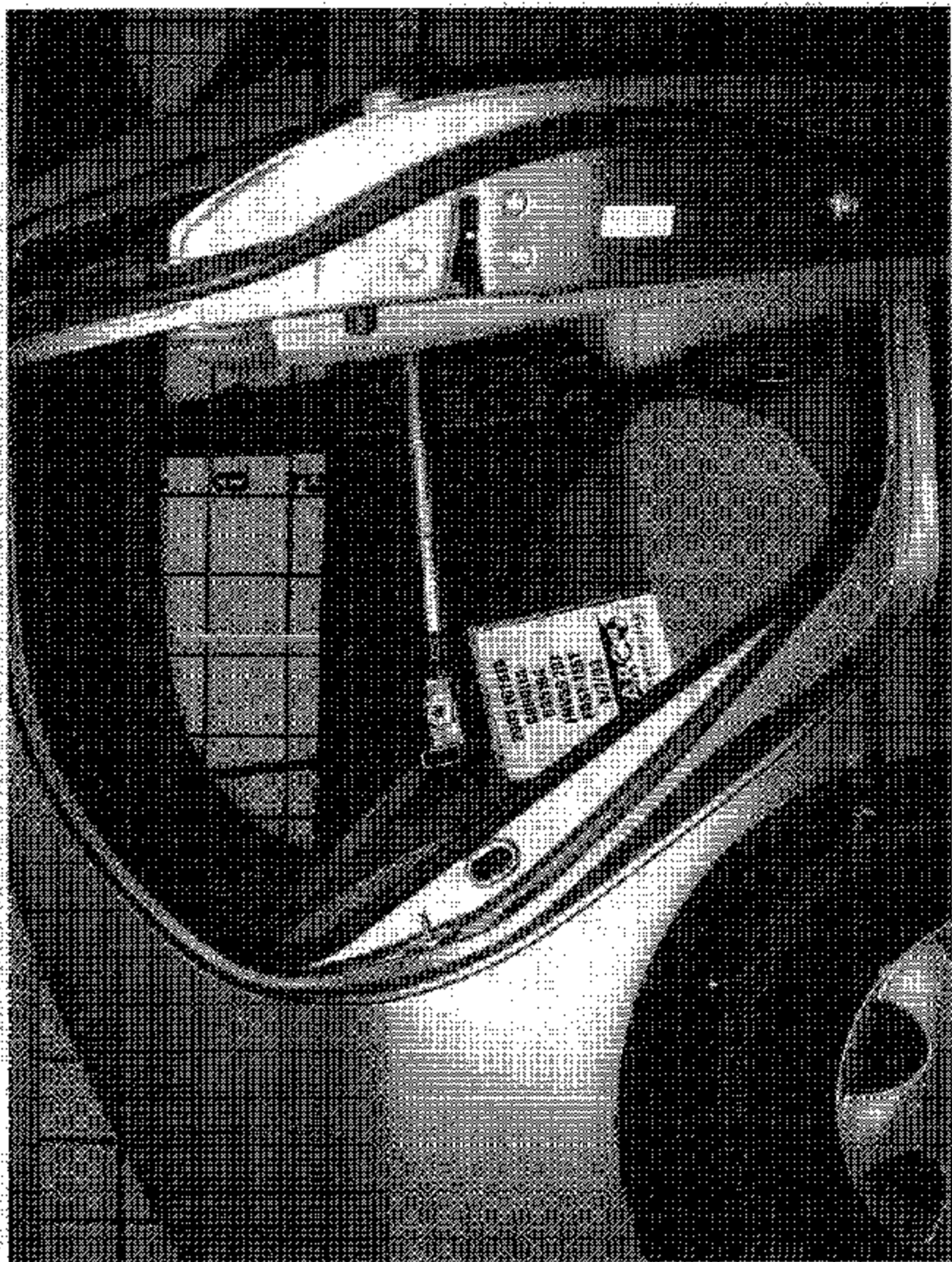


Figure A-34: Air Load on Seat Frame and Adjusters: Passenger's Side Rear, Post-Test

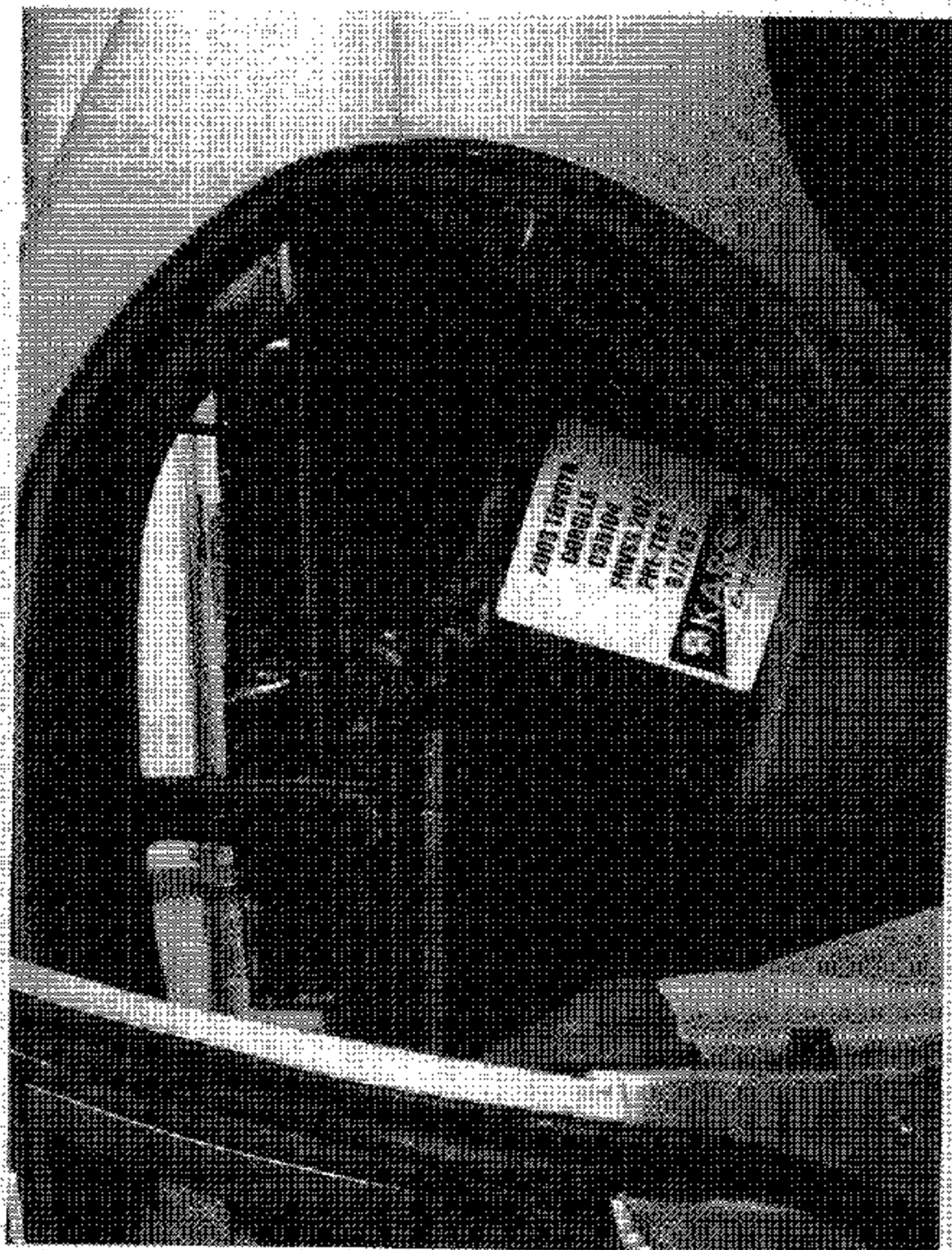


Figure A-35: Forward Load on Seat Frame and Adjusters, Driver's Side Rear, Pre-Test

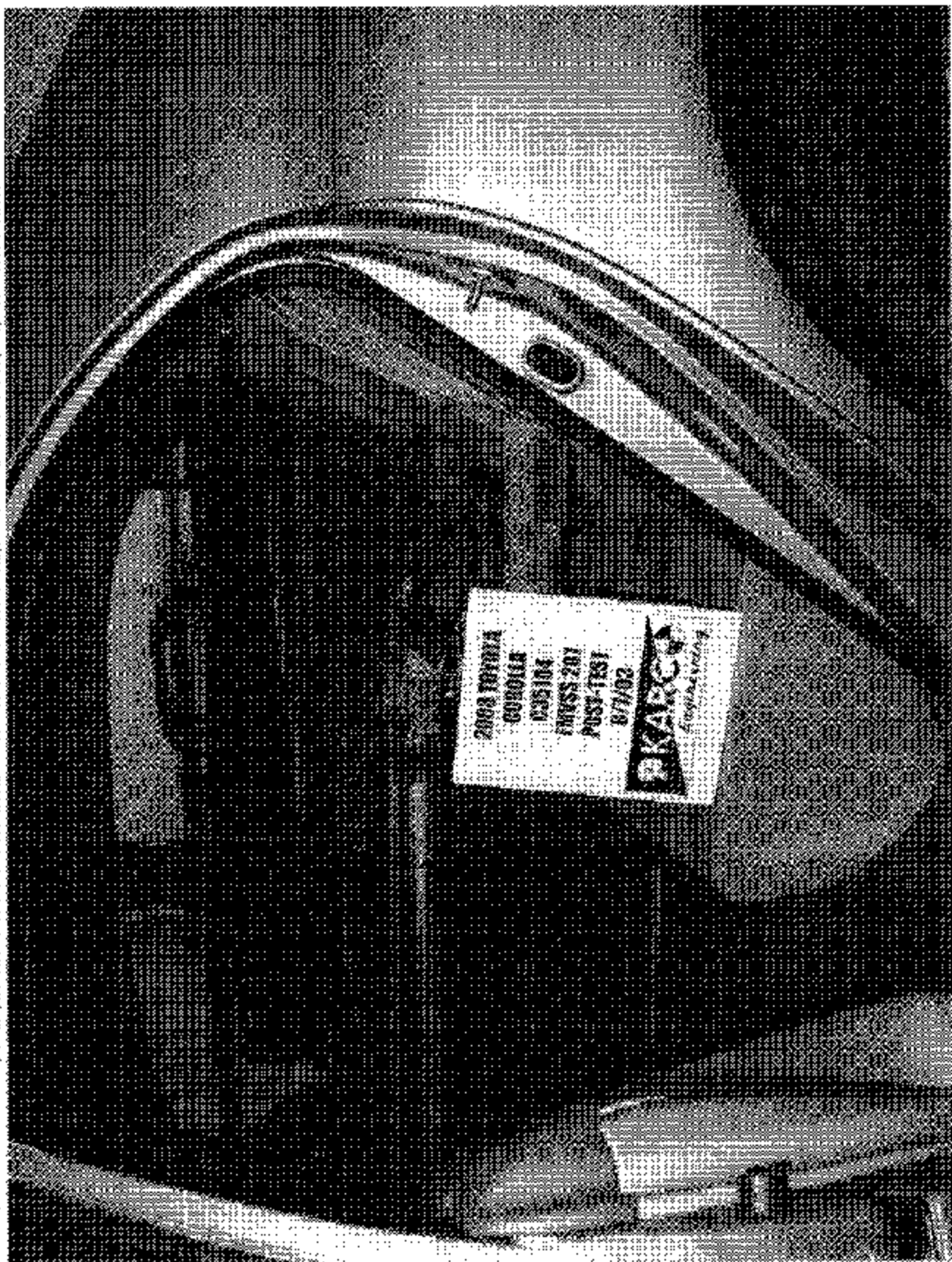


Figure A-36: Forward Load on Seat Frame and Adjusters, Driver's Side Rear, Post-Test



Figure A-37: Forward Load on Seat Frame and Adjusters, Passenger's Side Rear, Pre-Test

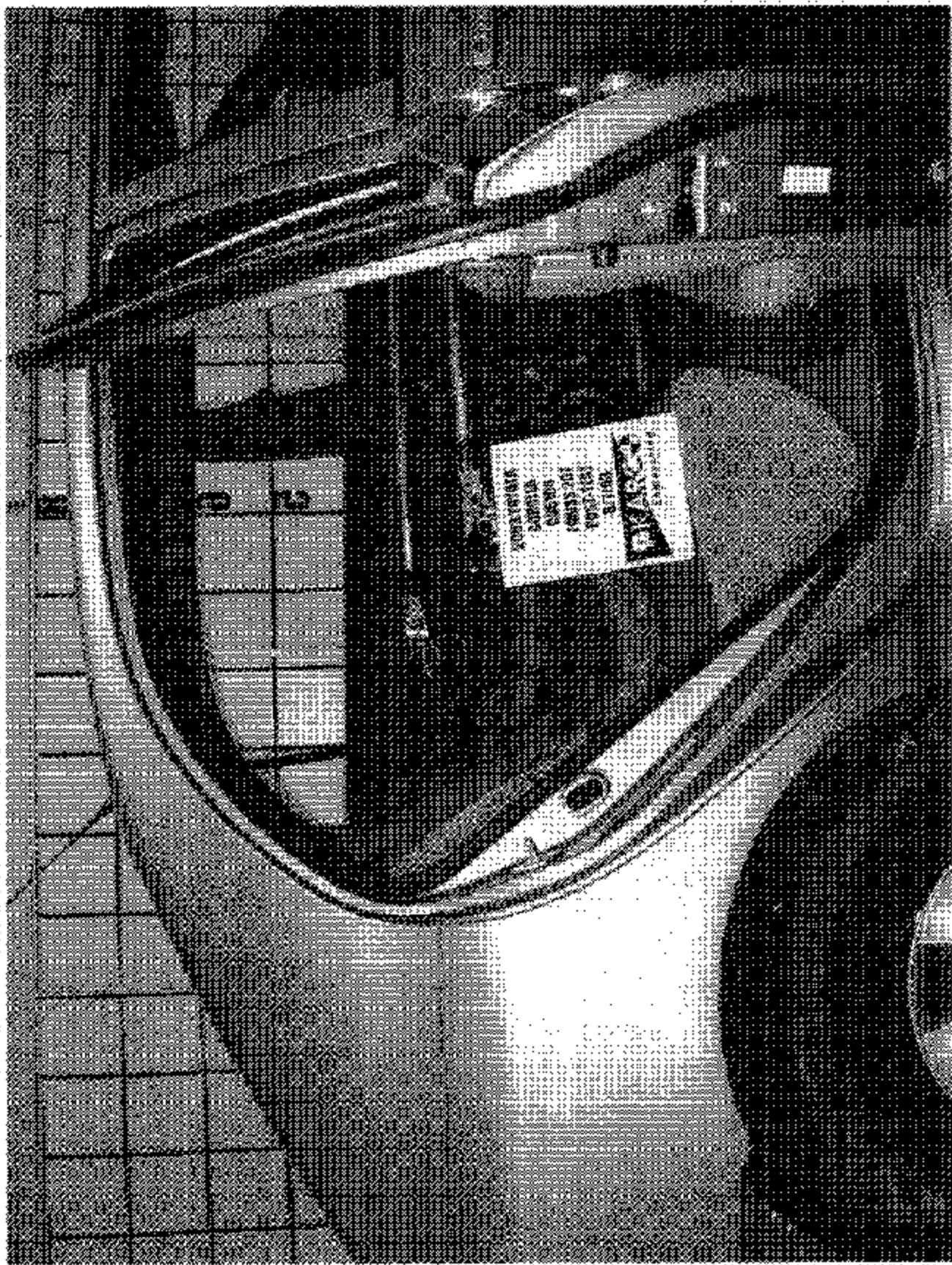


Figure A-38: Forward Load on Seat Frame and Adjusters, Passenger's Side Rear, Post-Test

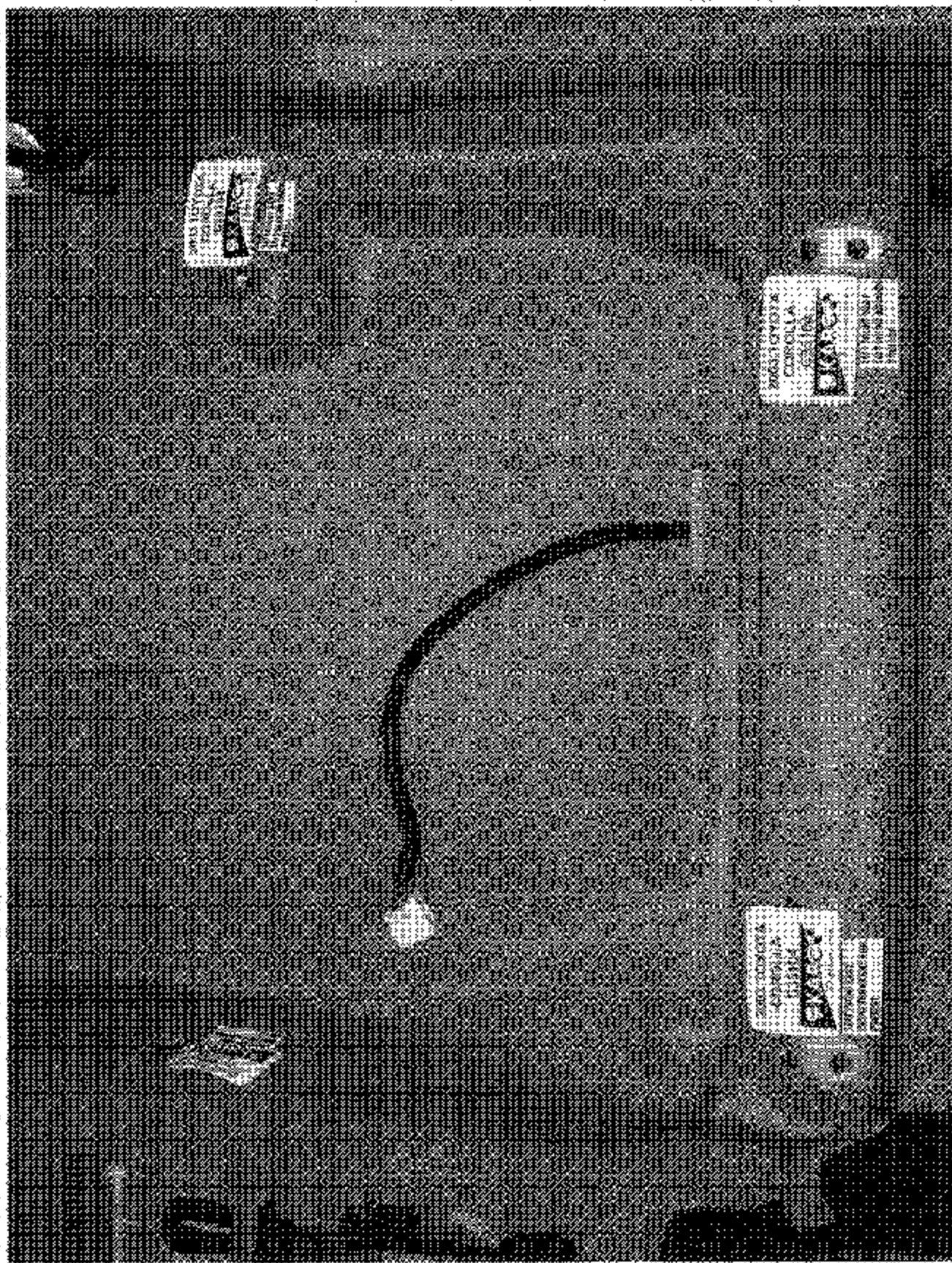


Figure A-39: Floor Pan Anchors, Left Front Seat Overall, Pre-Test

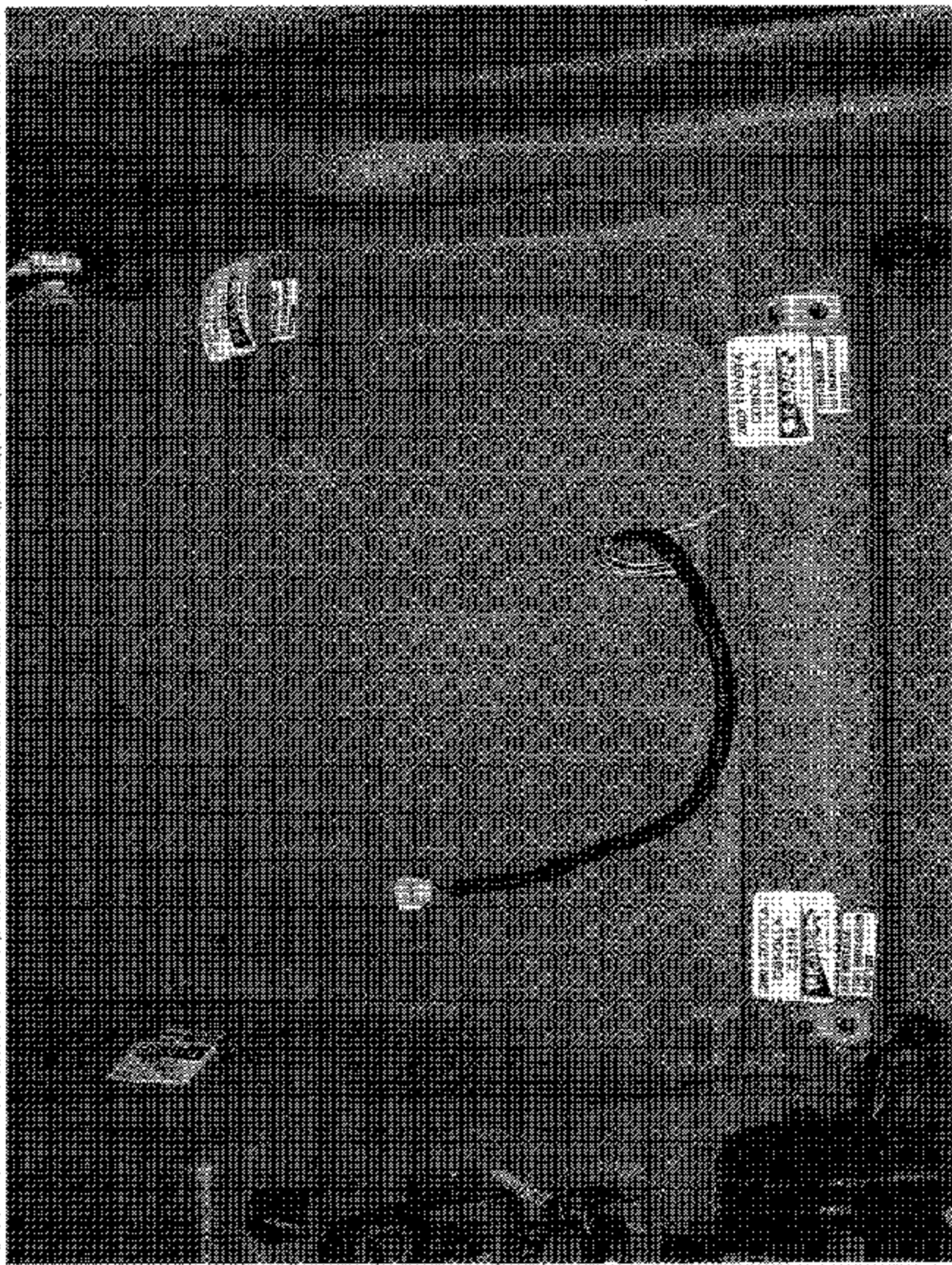


Figure A-40: Floor Pan Anchors, Left Front Seat Overall, Post-Test

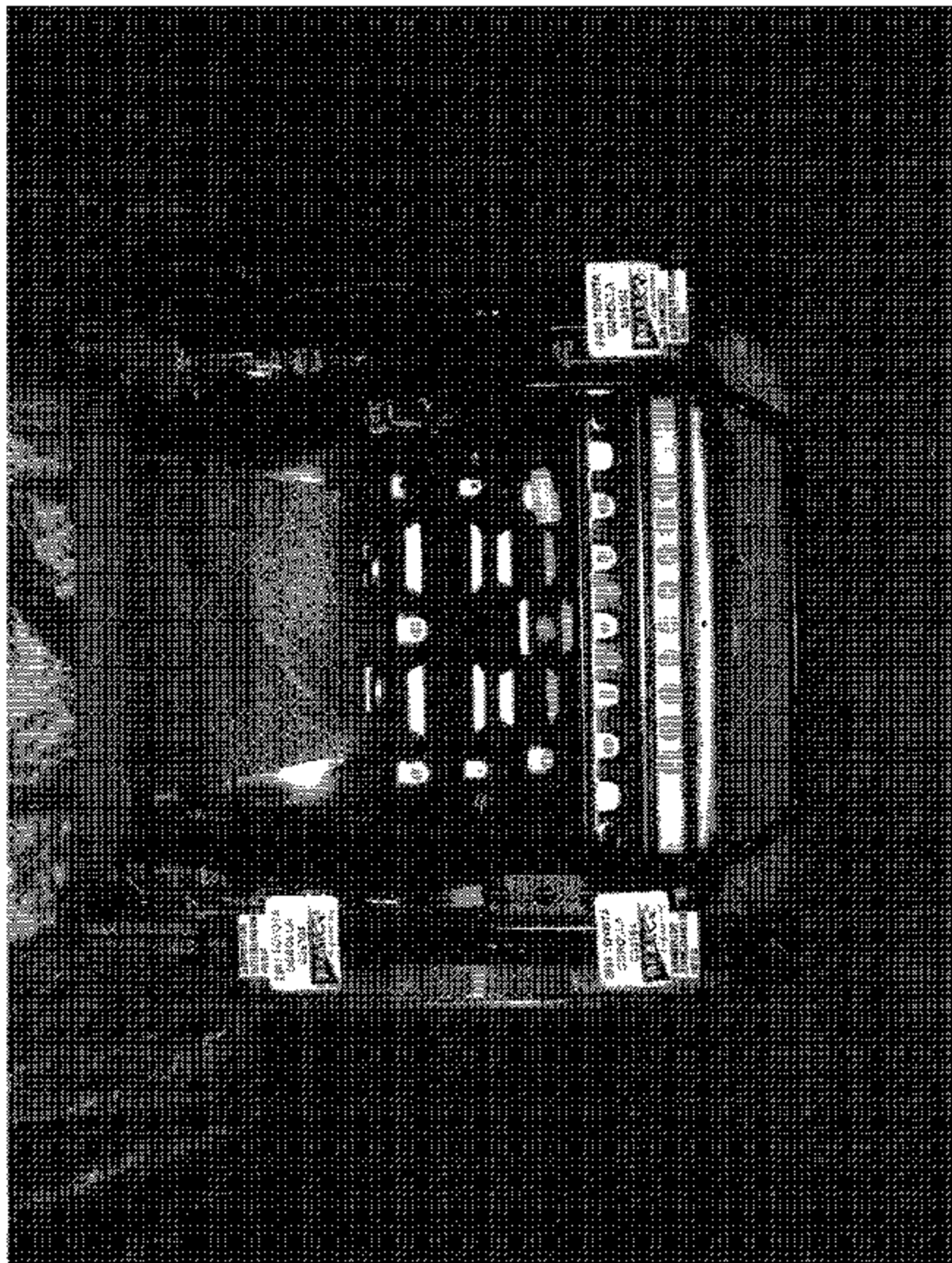


Figure A-41: Seat Anchors, Left Front Seat Overall, Pre-Test

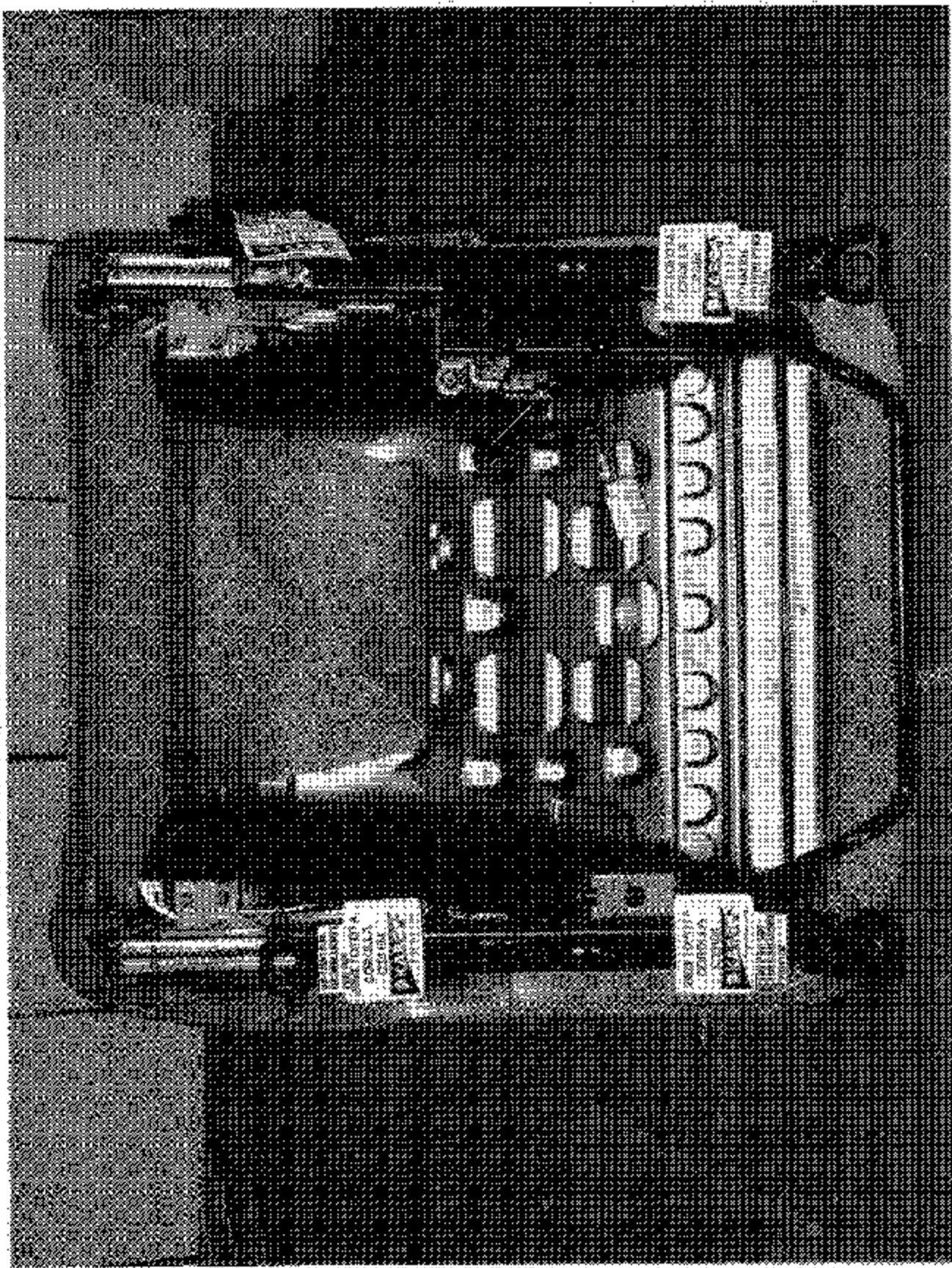


Figure A-42: Seat Anchors, Left Front Seat Overall, Post-Test

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LEFT FRONT SEAT

LEFT FRONT ANCHOR

PRETEST

Figure A-43: Floor Pan Anchor, Left Front Seat, Pre-Test

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**LEFT FRONT SEAT
LEFT FRONT ANCHOR
POST TEST**

Figure A-44: Floor Pan Anchor, Left Front Seat, Post-Test

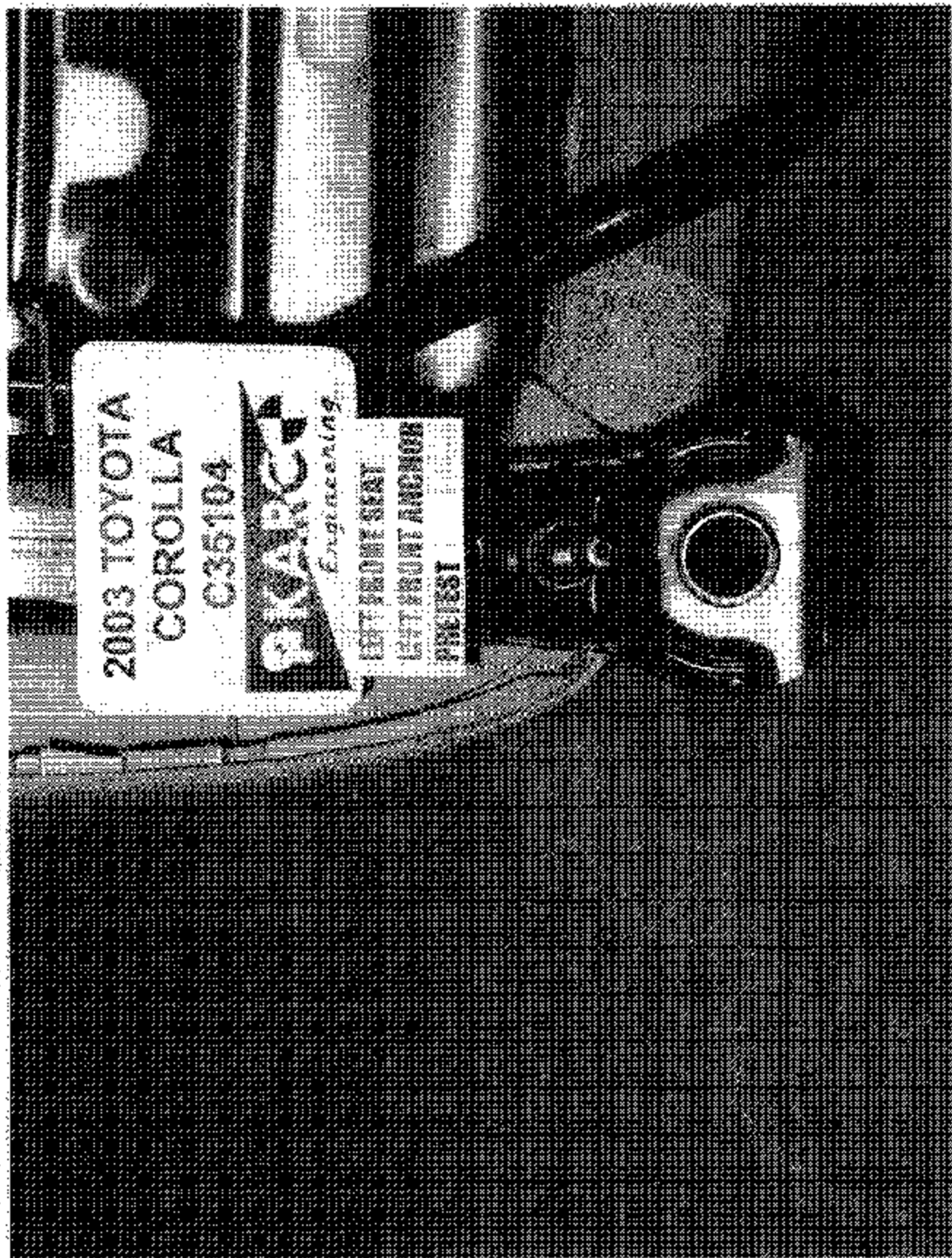


Figure A-45: Seat Anchor, Left Front Seat, Pre-Test

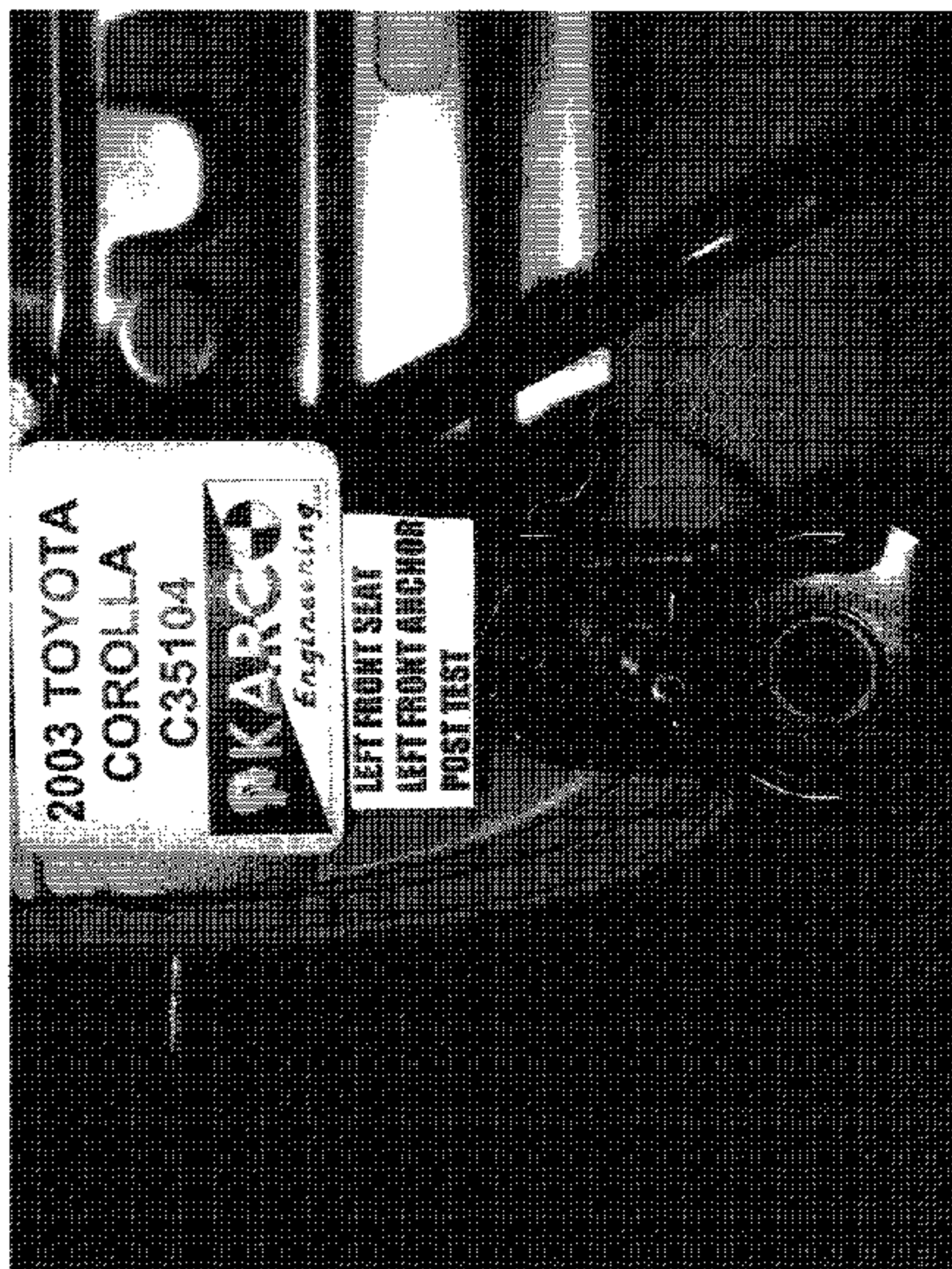


Figure A-46: Seat Anchor, Left Front Seat, Post-Test

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**LEFT FRONT SEAT
RIGHT FRONT ANCHOR
PRETEST**

Figure A-47: Floor Pan Anchor, Left Front Seat, Pre-Test

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OKARCS

Engineering

**LEFT FRONT SEAT
RIGHT FRONT ANCHOR
POST TEST**

Figure A-48: Floor Pan Anchor, Left Front Seat, Post-Test

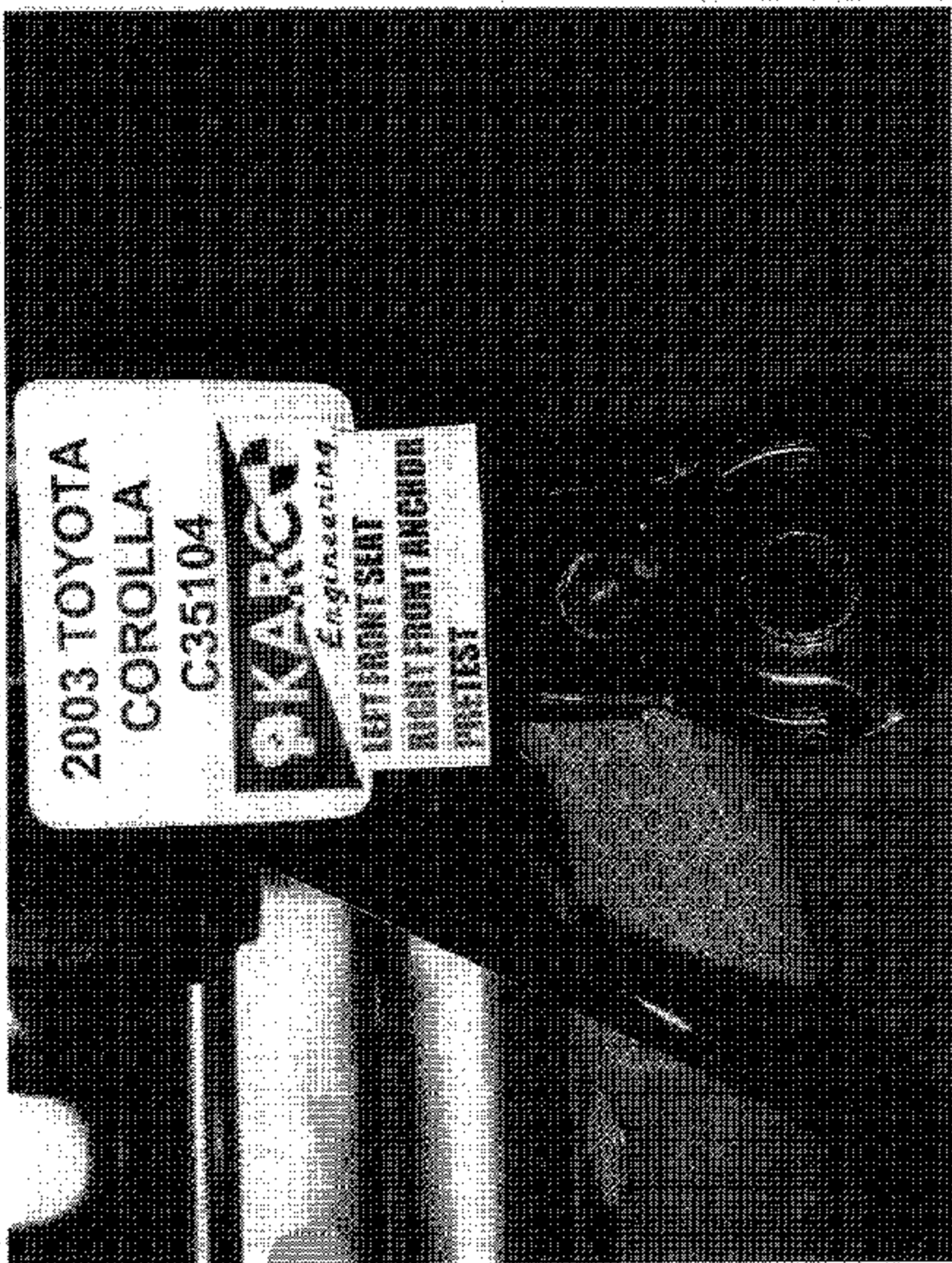


Figure A-49: Seat Anchor, Left Front Seat, Pre-Test

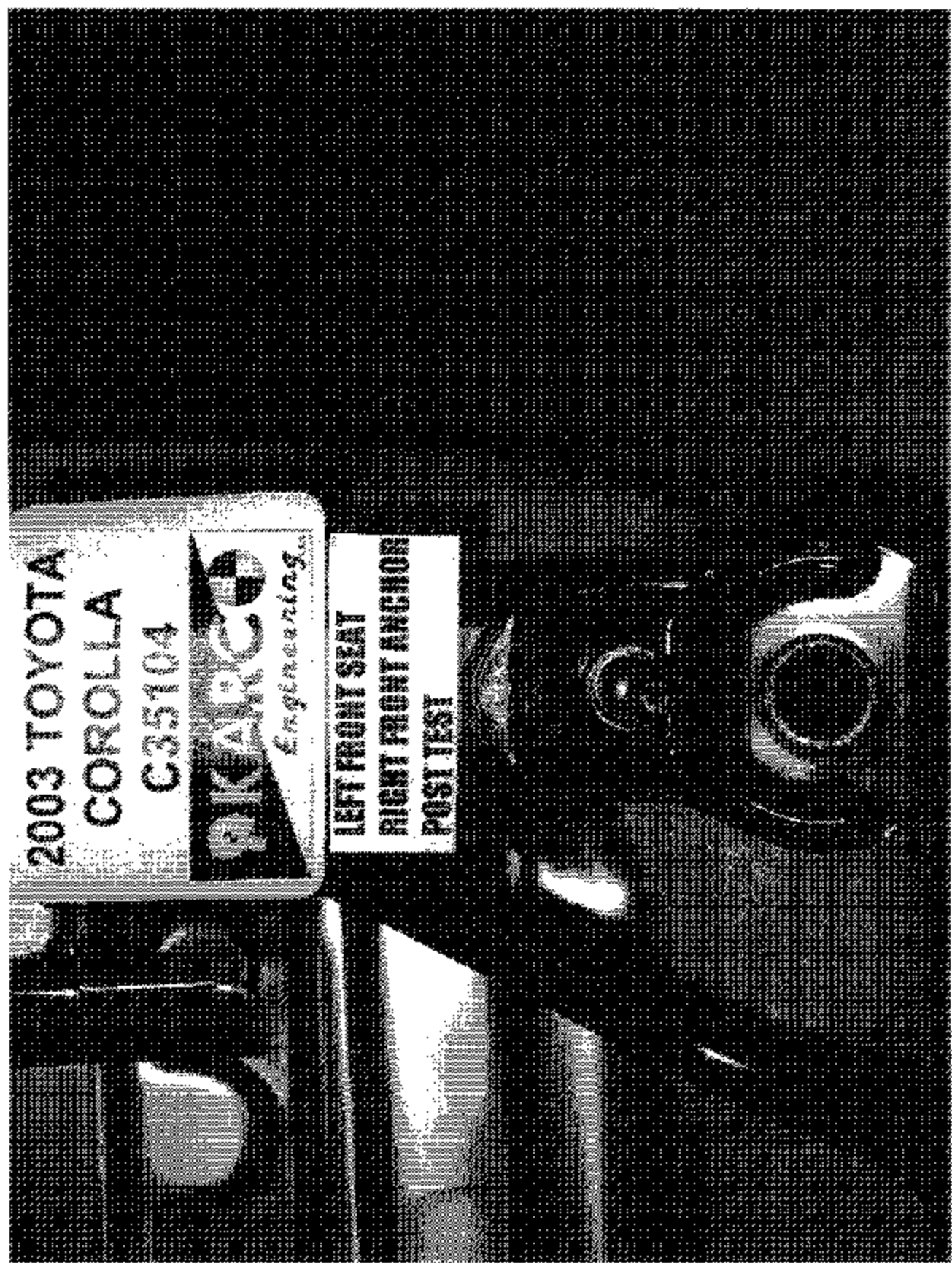


Figure A-50: Seat Anchor, Left Front Seat, Post-Test

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**LEFT FRONT SEAT
LEFT REAR ANCHOR
PRETEST**

Figure A-51: Floor Pan Anchor, Left Front Seat, Pre-Test



Figure A-52: Floor Pan Anchor, Left Front Seat, Post-Test



Figure A-53: Seat Anchor, Left Front Seat, Pre-Test

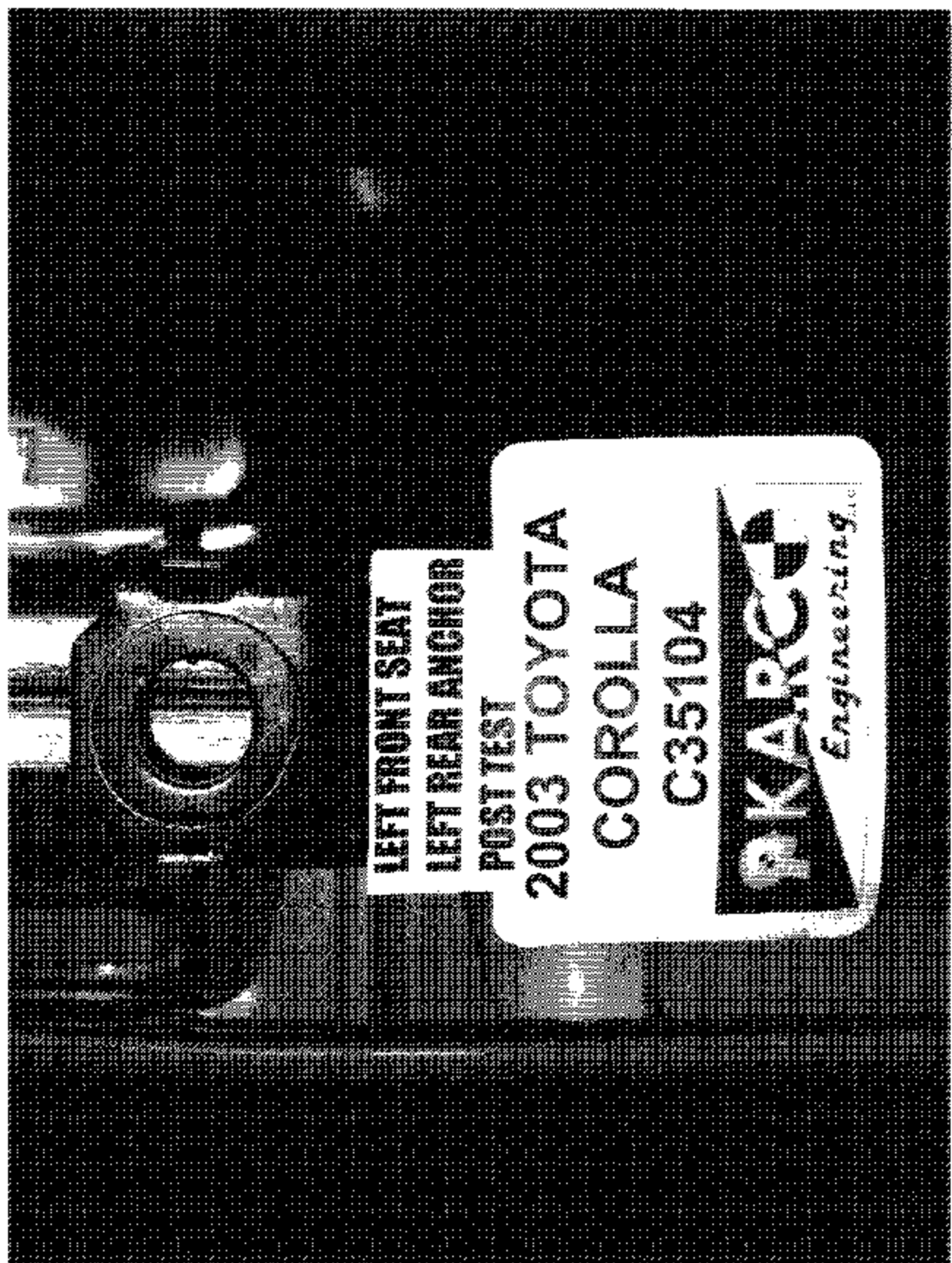


Figure A-54: Seat Anchor, Left Front Seat, Post-Test

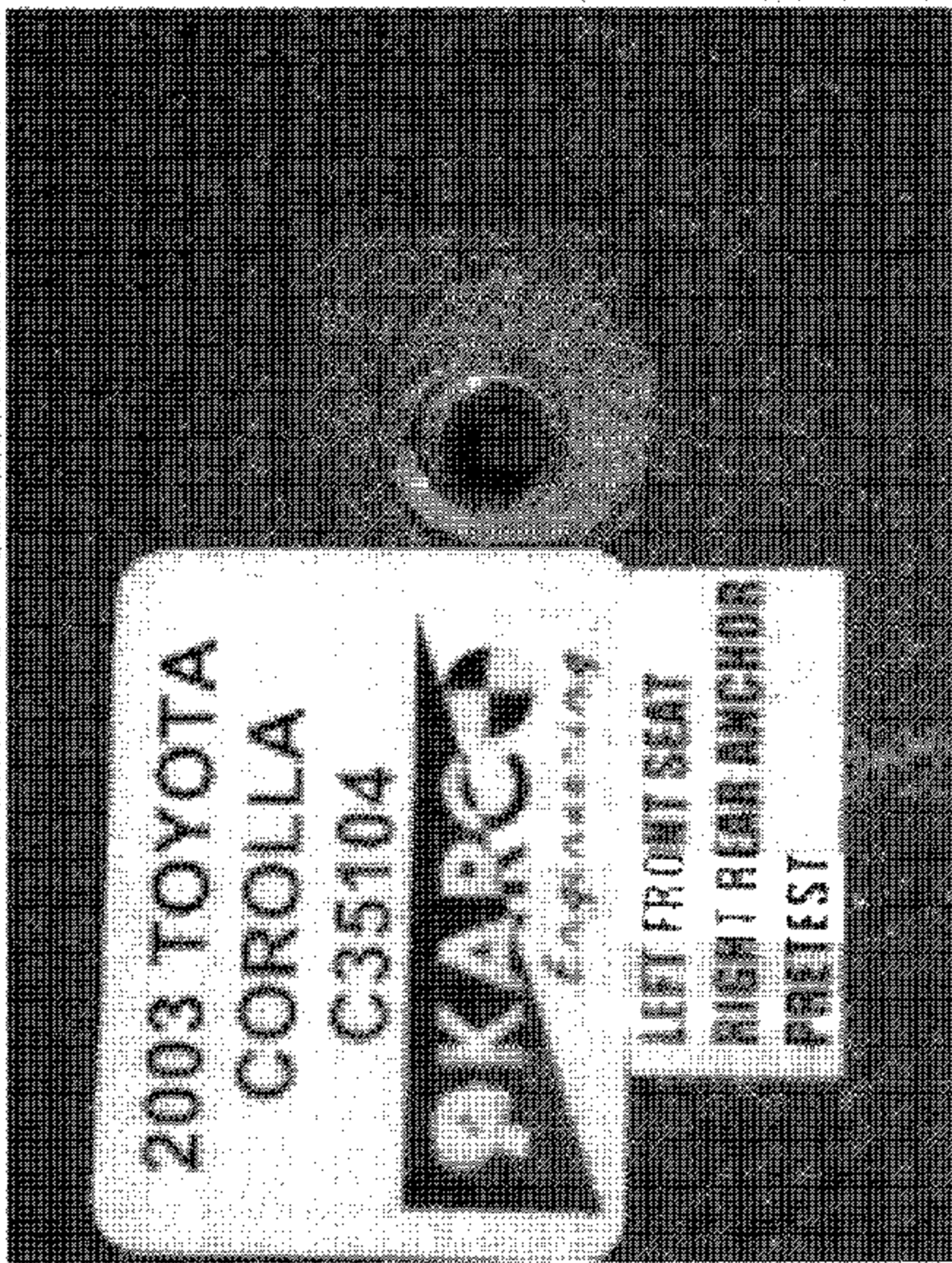


Figure A-55: Floor Pan Anchor, Left Front Seat, Pre-Test

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**LEFT FRONT SEAT
RIGHT REAR ANCHOR
POST TEST**

Figure A-56: Floor Pan Anchor, Left Front Seat, Post-Test

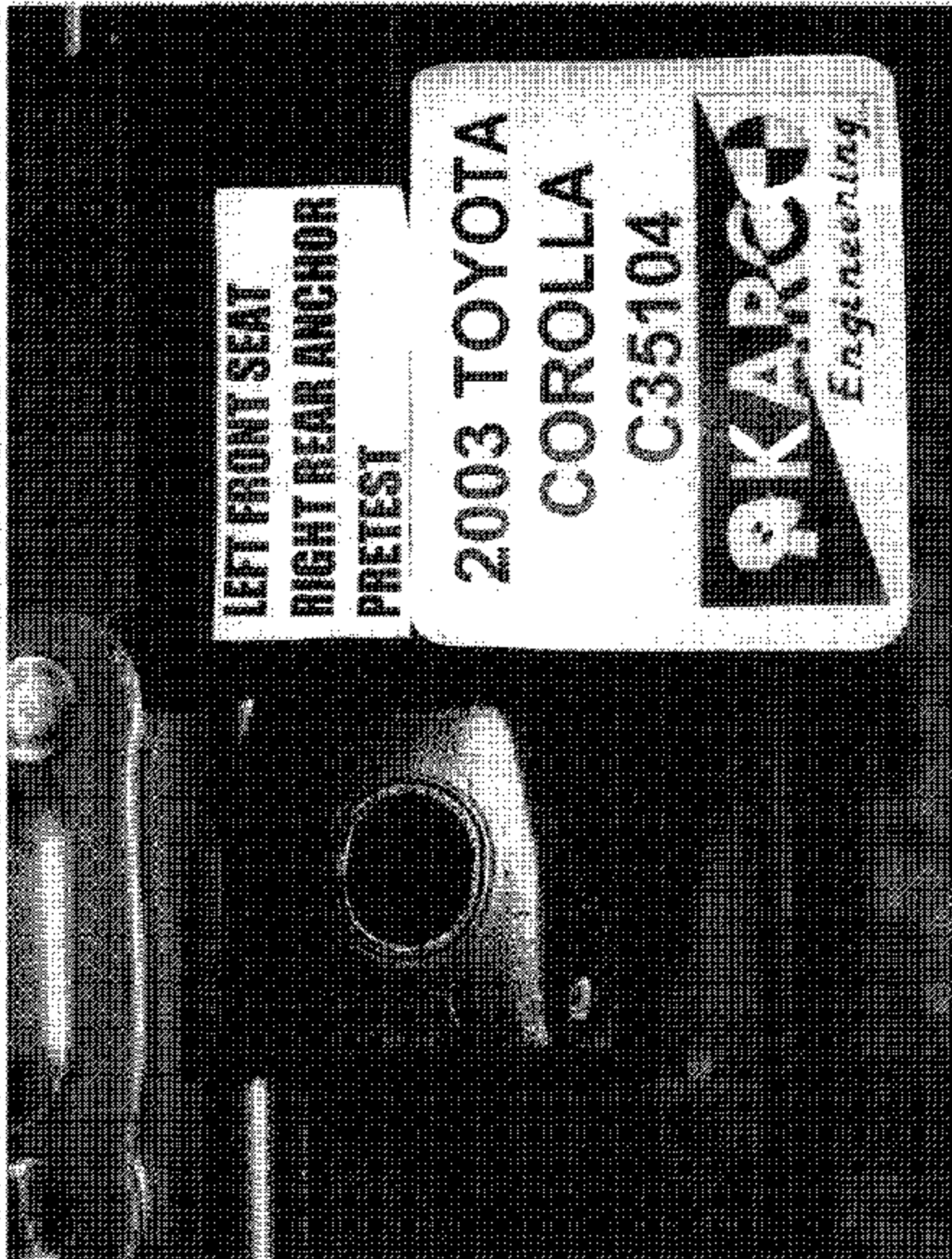


Figure A-57: Seat Anchor, Left Front Seat, Pre-Test



Figure A-58: Seat Anchor, Left Front Seat, Post-Test

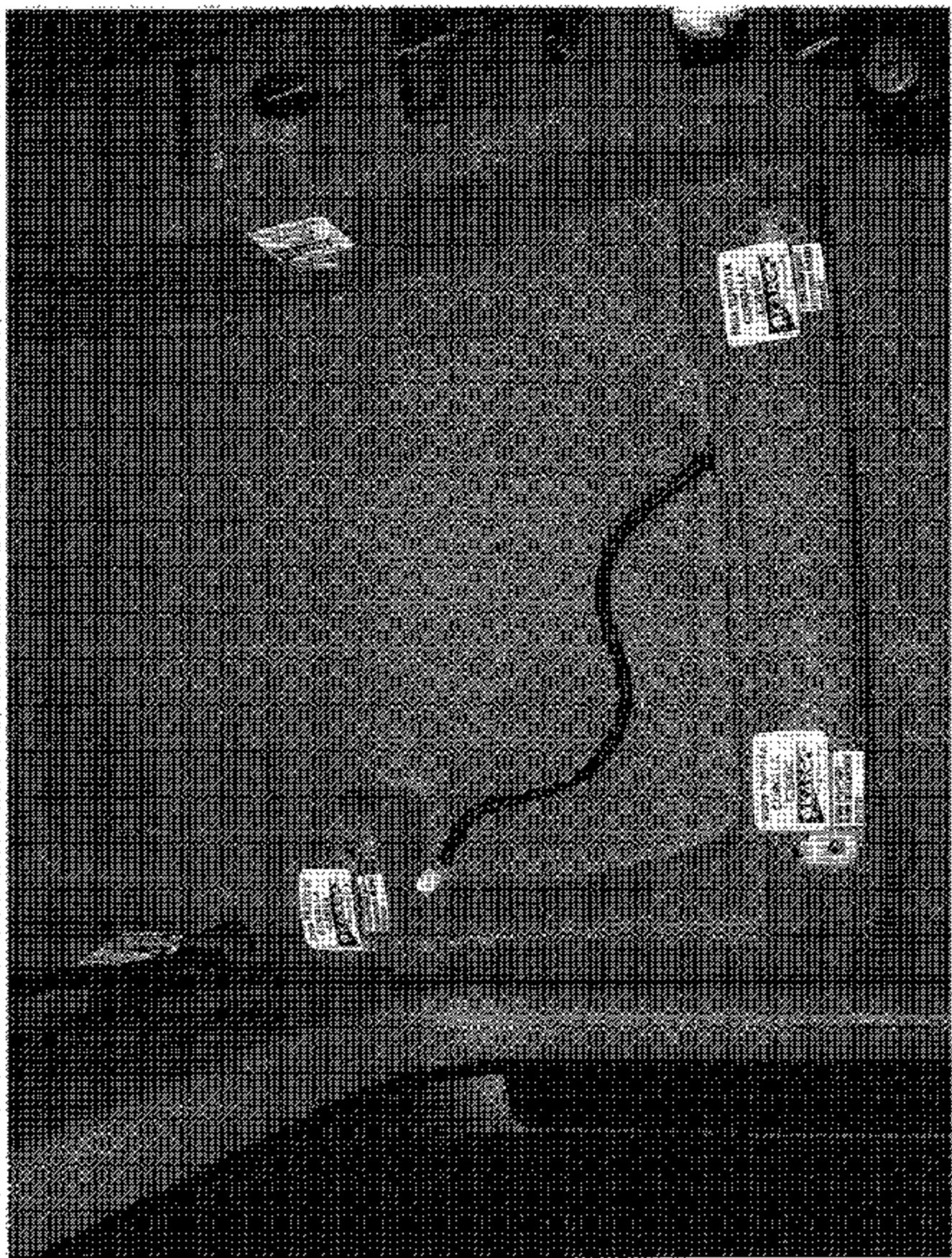


Figure A-59: Floor Pan Anchors; Right Front Seat Overall, Pre-Test

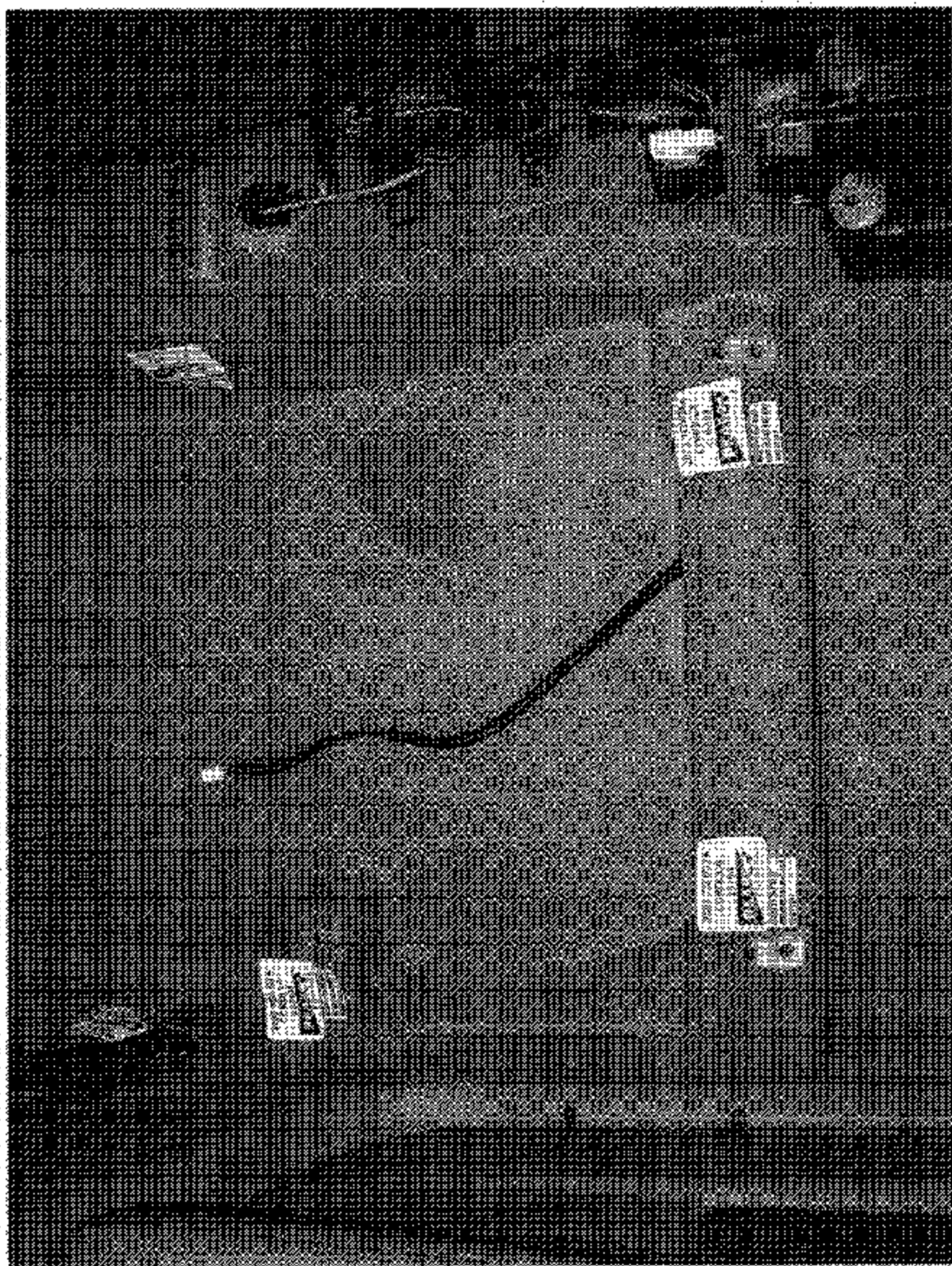


Figure A-60: Floor Pan Anchors, Right Front Seat Overall, Post-Test

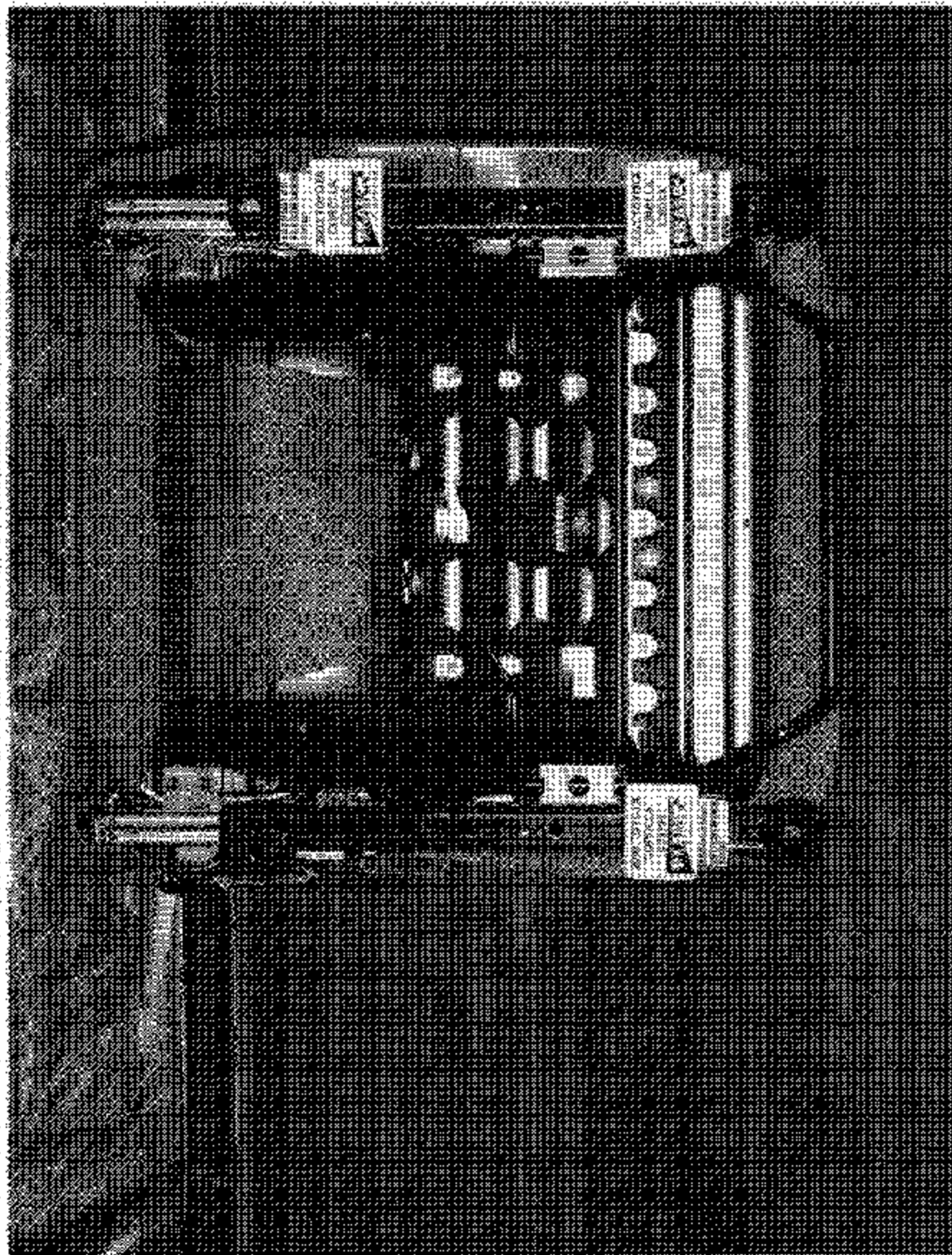


Figure A-61: Seat Anchors, Right Front Seat Overall, Pre-Test

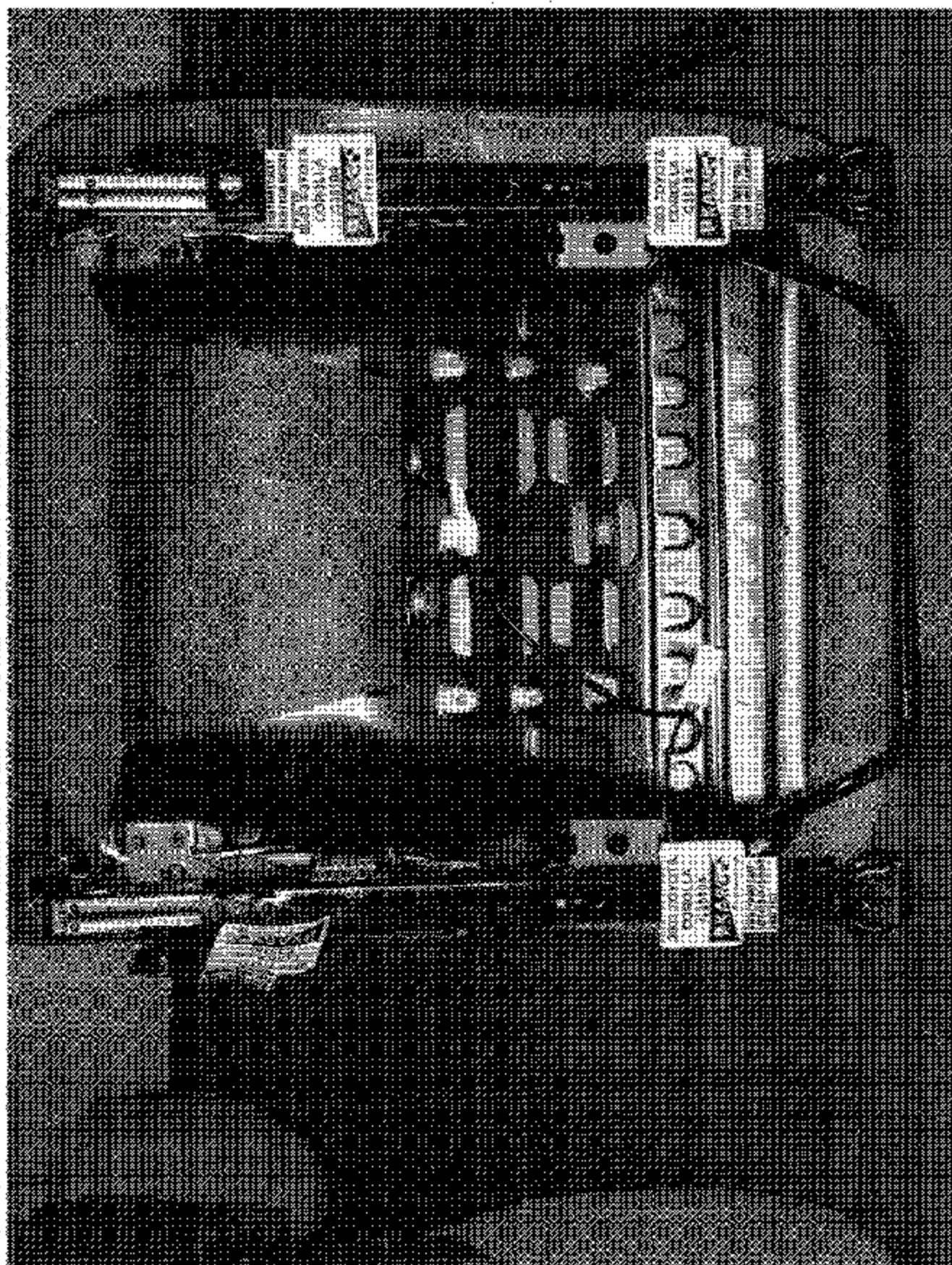


Figure A-62: Seat Anchors, Right Front Seat Overall, Post-Test

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**RIGHT FRONT SEAT
LEFT FRONT ANCHOR
PRETEST**

Figure A-63: Floor Pan Anchor, Right Front Seat, Pre-Test



Figure A-64: Floor Pan Anchor, Right Front Seat, Post-Test



Figure A-65: Seat Anchor, Right Front Seat, Pre-Test



Figure A-66: Seat Anchor, Right Front Seat, Post-Test

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RIGHT FRONT SEAT
RIGHT FRONT ANCHOR
PRETEST

Figure A-67: Floor Pan Anchor, Right Front Seat, Pre-Test

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RIGHT FRONT ANCHOR
POST TEST



Figure A-68: Floor Pan Anchor, Right Front Seat, Post Test

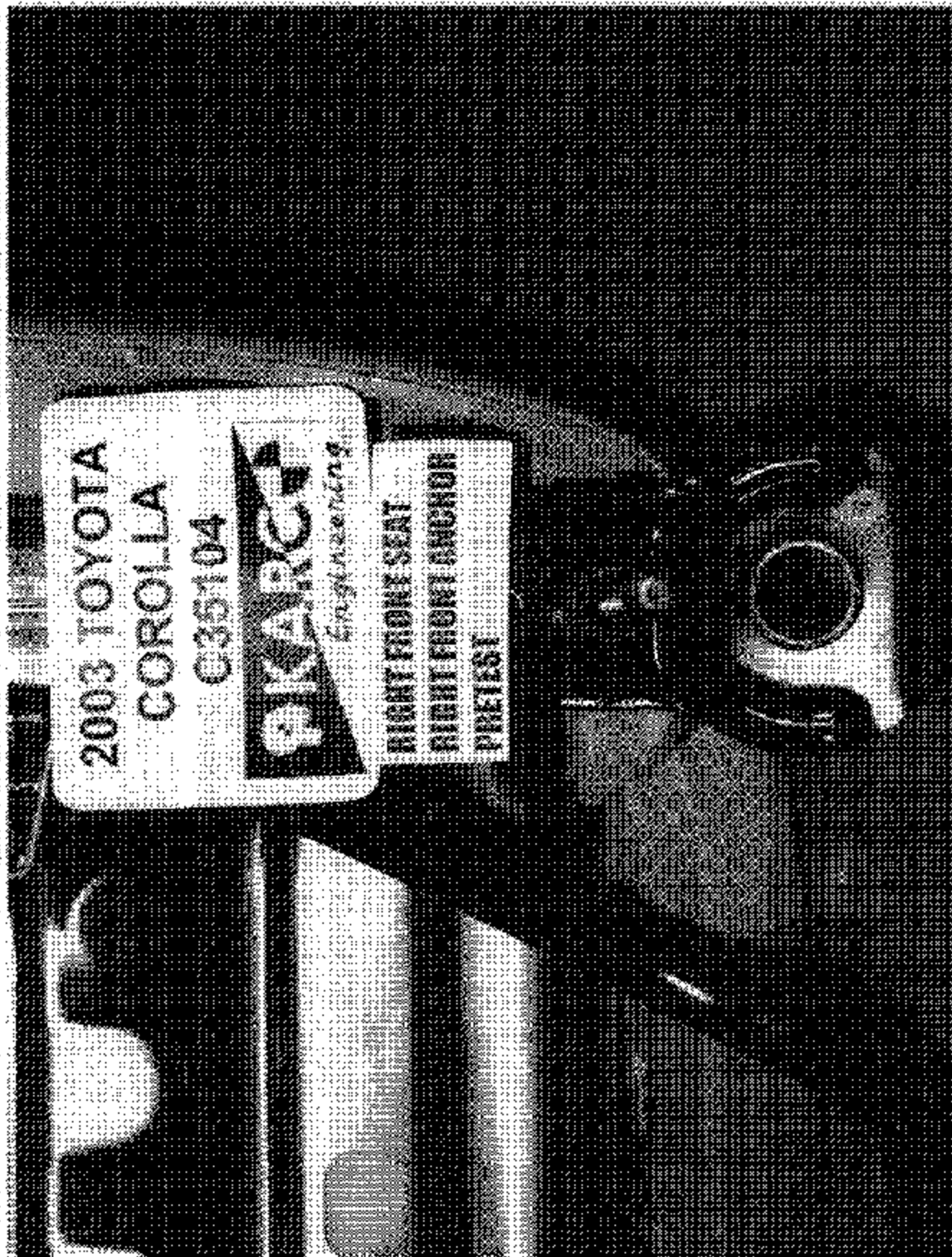


Figure A-69: Seat Anchor, Right Front Seat, Pre-Test

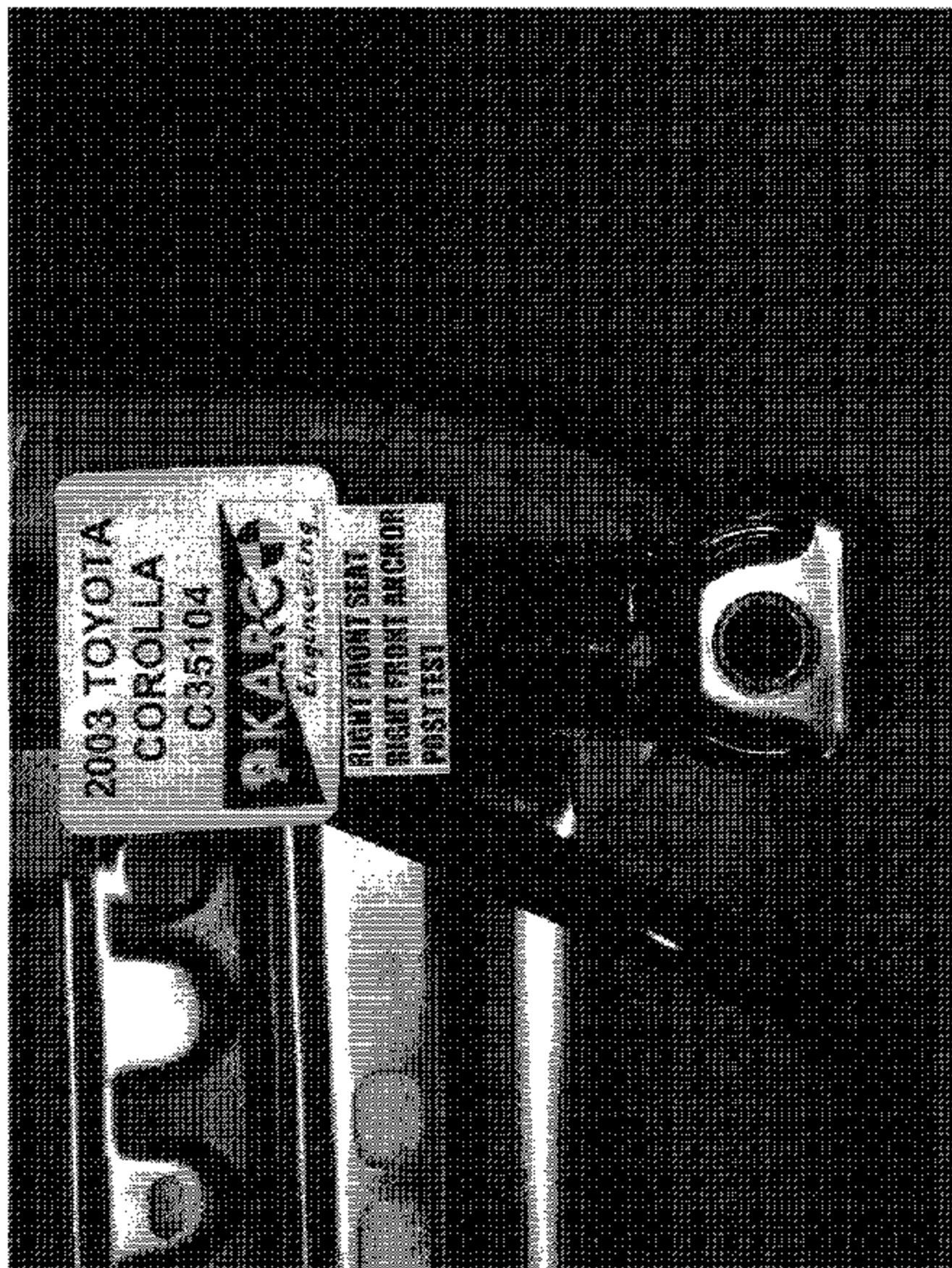


Figure A-70: Seat Anchor, Right Front Seat, Post-Test

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**RIGHT FRONT SEAT
LEFT REAR ANCHOR
PRETEST**

Figure A-71: Floor Pan Anchor, Right Front Seat, Pre-Test

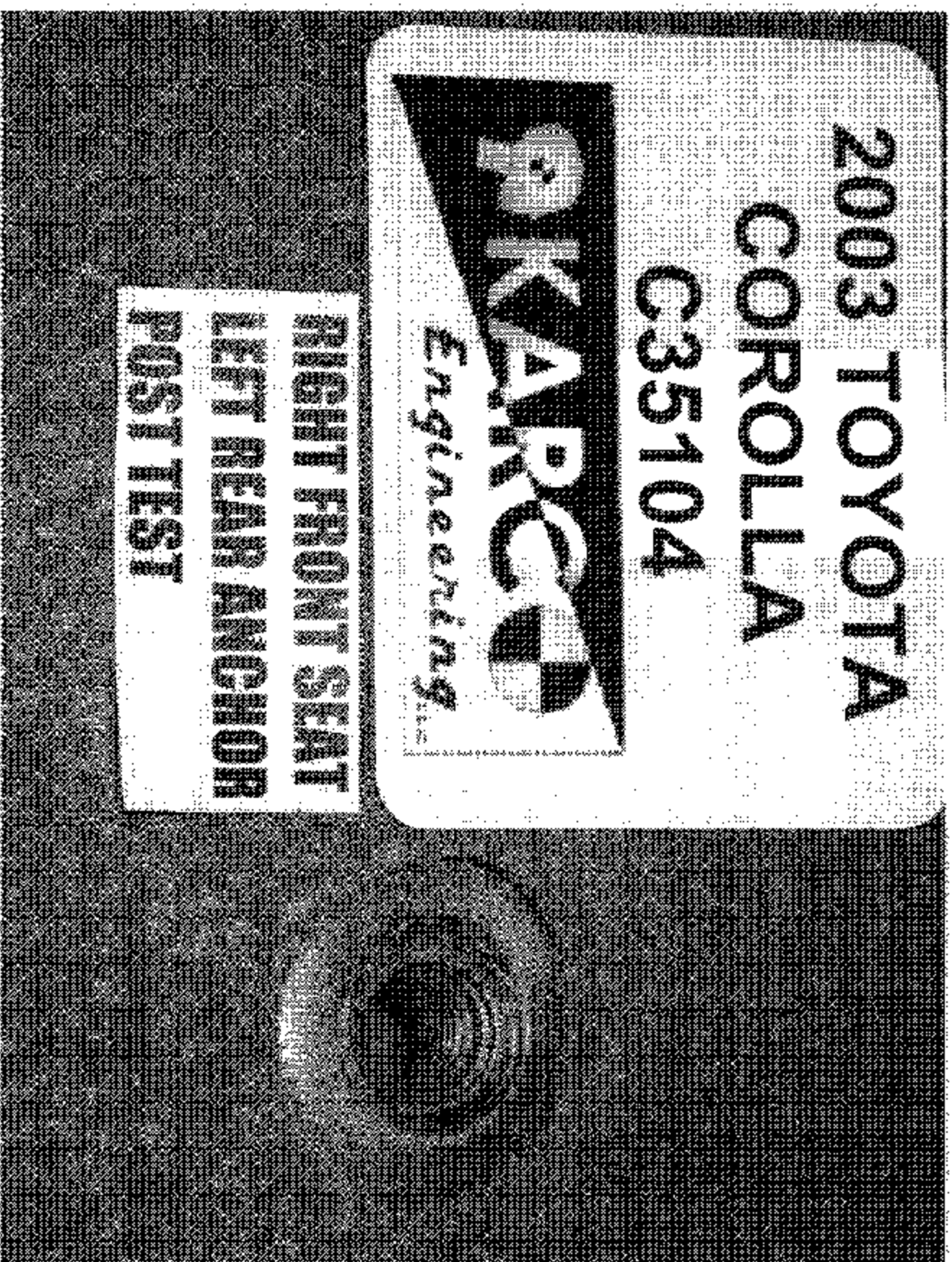


Figure A-72: Floor Pan Anchor, Right Front Seat, Post-Test

**RIGHT FRONT SEAT
LEFT REAR ANCHOR
PRETEST**

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Figure A-79: Seat Anchor, Right Front Seat, Pre-Test

**RIGHT FRONT SEAT
LEFT REAR ANCHOR
POST TEST**

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Figure A-74: Seat Anchor, Right Front Seat, Post-Test

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RIGHT FRONT SEAT
RIGHT REAR ANCHOR
PRETEST

Figure A-75: Floor Pan Anchor, Right Front Seat, Pre-Test



Figure A-76: Floor Pan Anchor, Right Front Seat, Post-Test

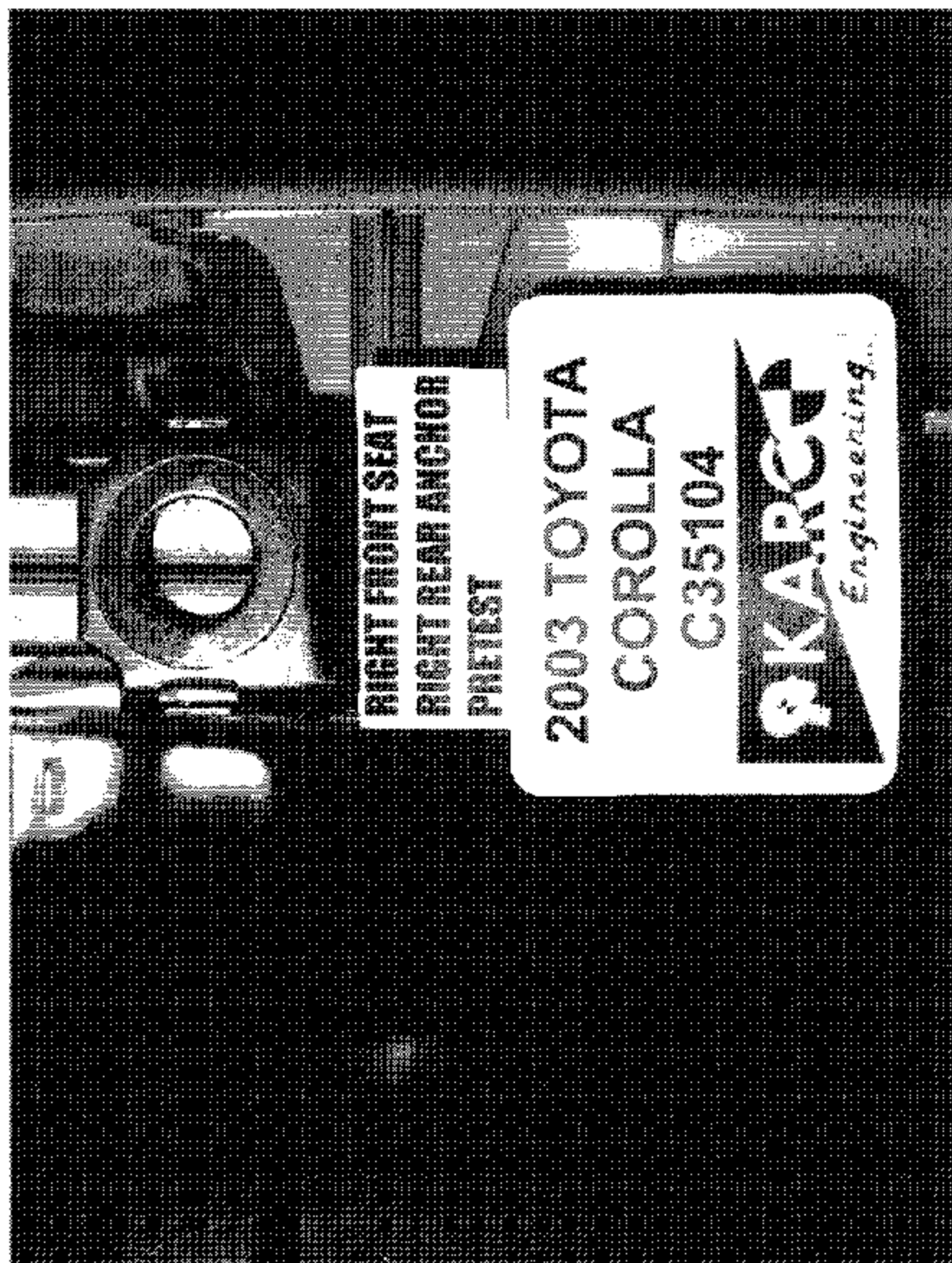


Figure A-77: Seat Anchor, Right Front Seat, Pre-Test



Figure A-78: Seat Anchor, Right Front Seat, Post-Test

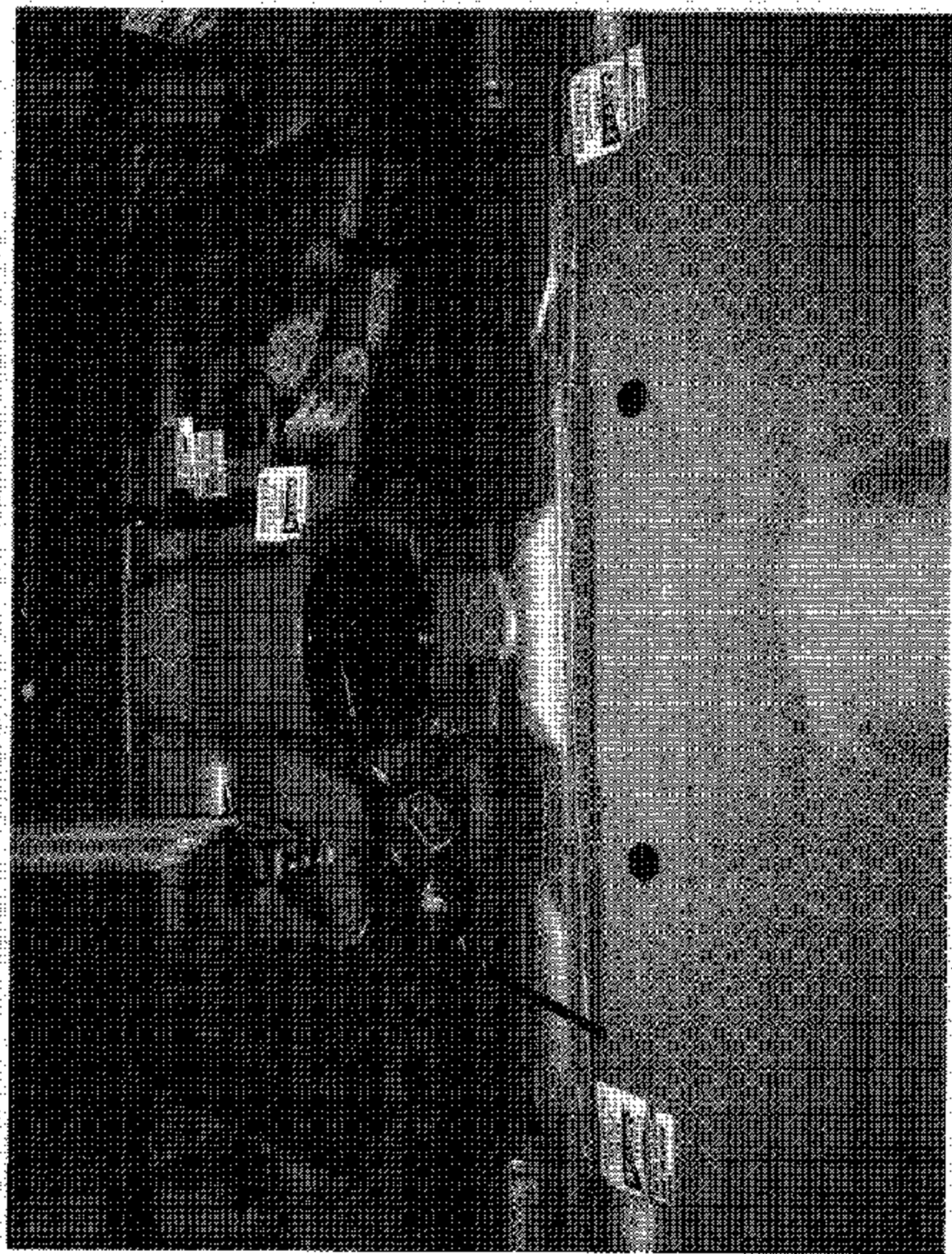


Figure A-79: Floor Pan Anchors, Rear Seat, Seat Cushion Overall, Pre-Test

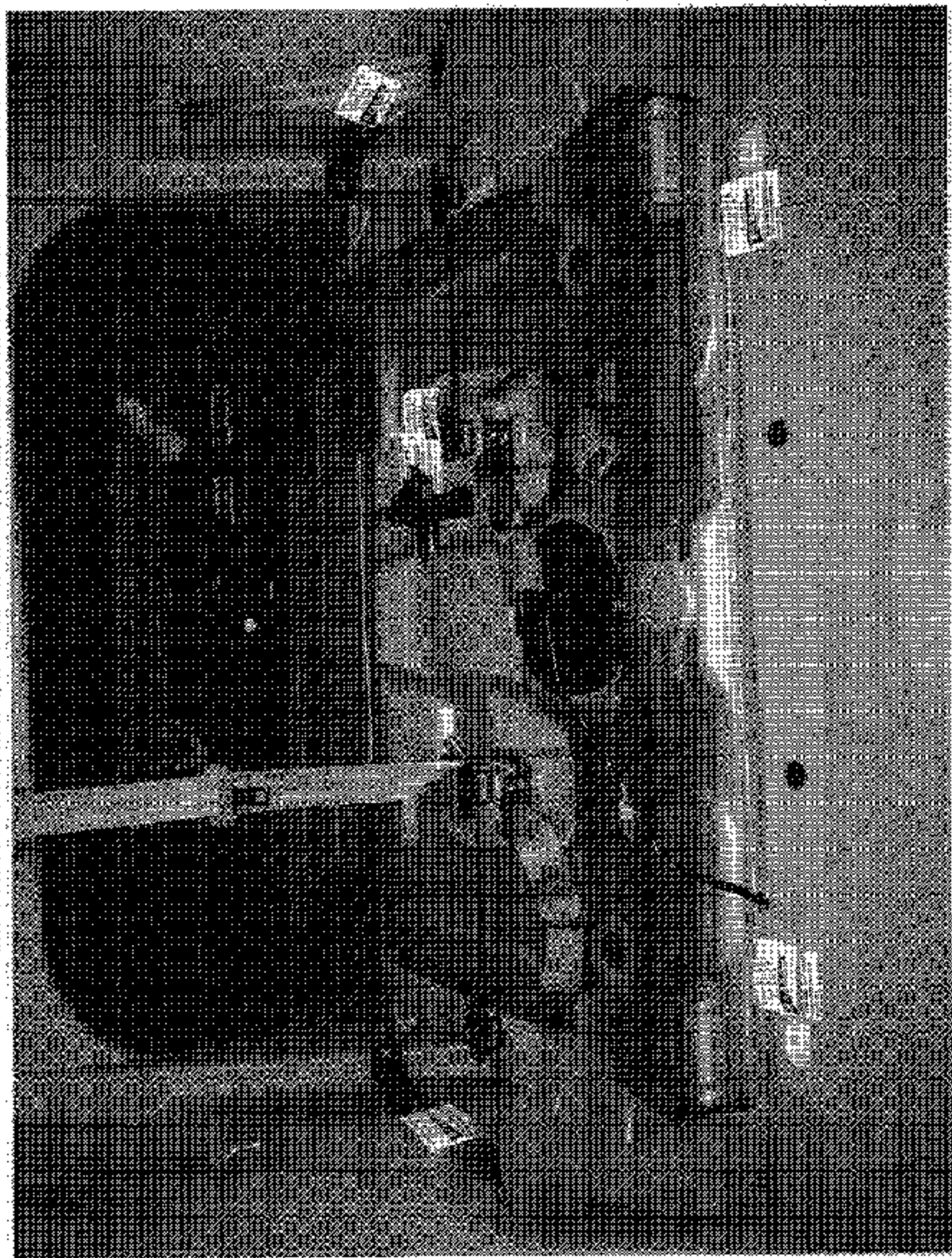


Figure A-80: Floor Pan Anchors, Rear Seat, Seat Cushion Overall, Post-Test

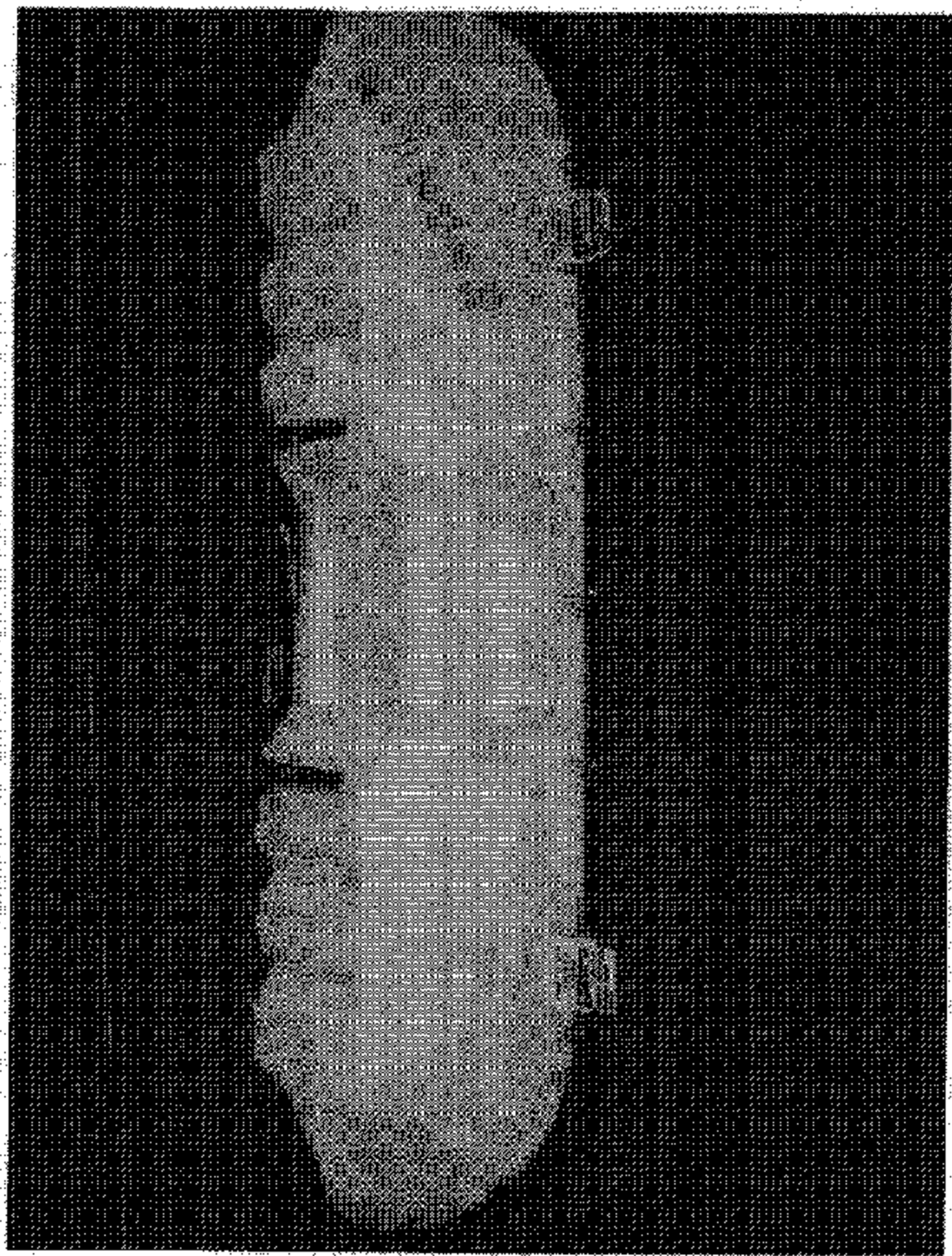


Figure A-81: Seat Anchors, Rear Seat, Seat Cushion Overall, Pre-Test

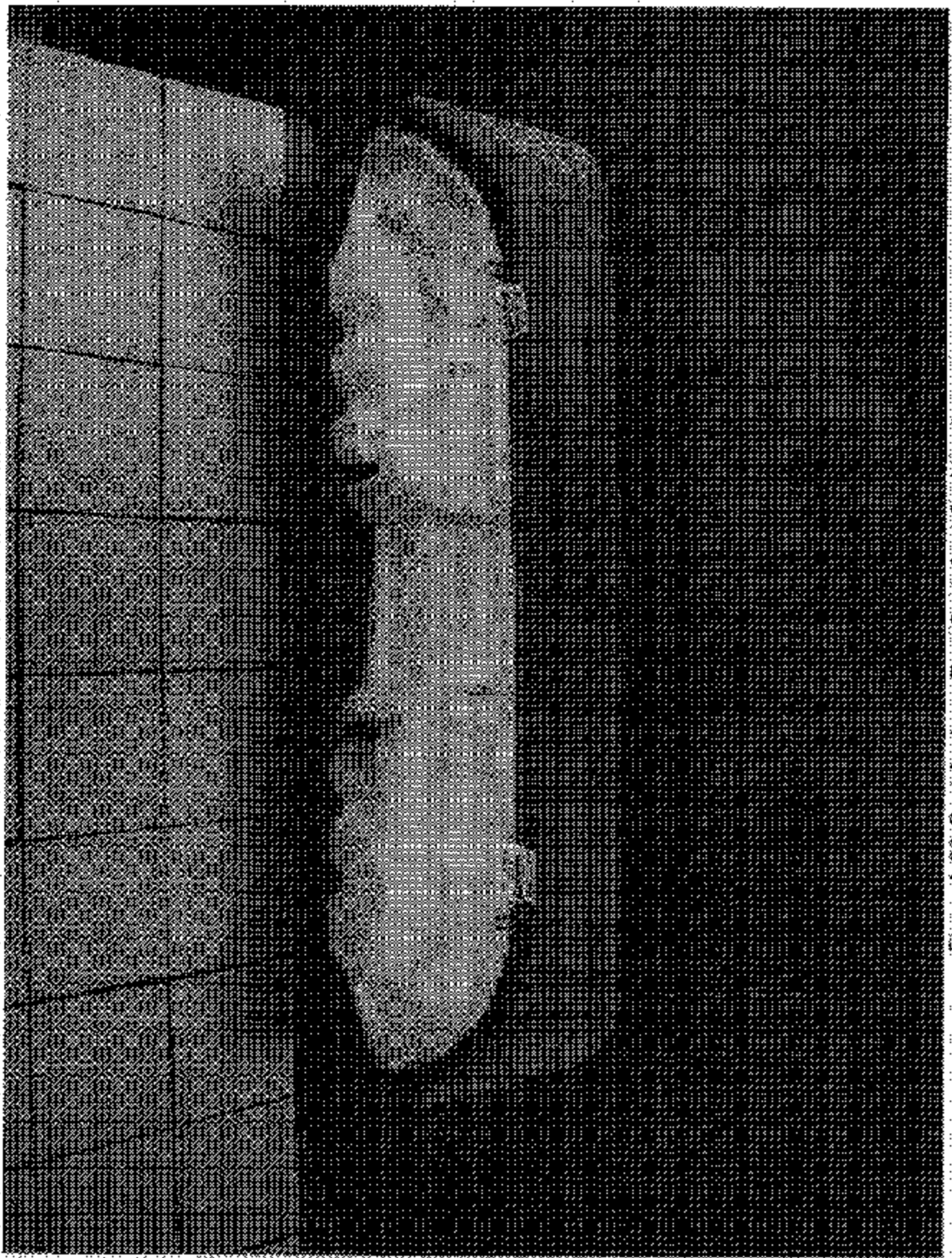


Figure A-82: Seat Anchors, Rear Seat, Seat Cushion Overall, Post-Test

2003 TOYOTA

COROLLA

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REAR SEAT, SEAT CUSHION

LEFT FRONT ANCHOR

PRETEST

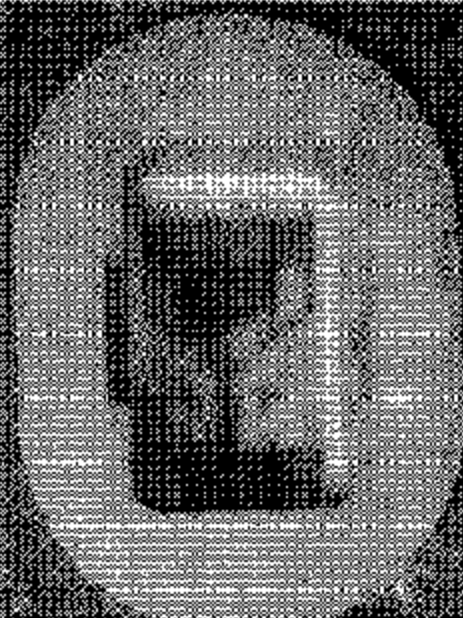


Figure A-83: Floor Pan Anchor, Rear Seat, Seat Cushion, Pre-Test



Figure A-84: Floor Pan Anchor, Rear Seat, Seat Cushion, Post-Test

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C35104**

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Engineering

**REAR SEAT, SEAT CUSHION
LEFT FRONT ANCHOR
PRETEST**

Figure A-85: Seat Anchor, Rear Seat, Seat Cushion, Pre-Test

2003 TOYOTA COROLLA

C35104



REAR SEAT, SEAT CUSHION
LEFT FRONT ANCHOR
POST TEST

Figure A-86: Seat Anchor, Rear Seat, Seat Cushion, Post-Test

**2003 TOYOTA
COROLLA**

C35104

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**REAR SEAT, SEAT CUSHION
RIGHT FRONT ANCHOR
PRETEST**

Figure A-87: Floor Pan Anchor, Rear Seat, Seat Cushion, Pre-Test

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REAR SEAT, SEAT CUSHION

NIGHT FRONT ANCHOR

POST TEST

Figure A-88: Floor Pan Anchor, Rear Seat, Seat Cushion, Post-Test

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REAR SEAT, SEAT CUSHION
RIGHT FRONT ANCHOR
PRETEST

Figure A-89: Seal Anchor, Rear Seat, Seat Cushion, Pre-Test

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COROLLA
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**REAR SEAT, SEAT CUSHION
RIGHT FRONT ANCHOR
POST TEST**

Figure A-90: Seat Anchor, Rear Seat, Seat Cushion, Post-Test

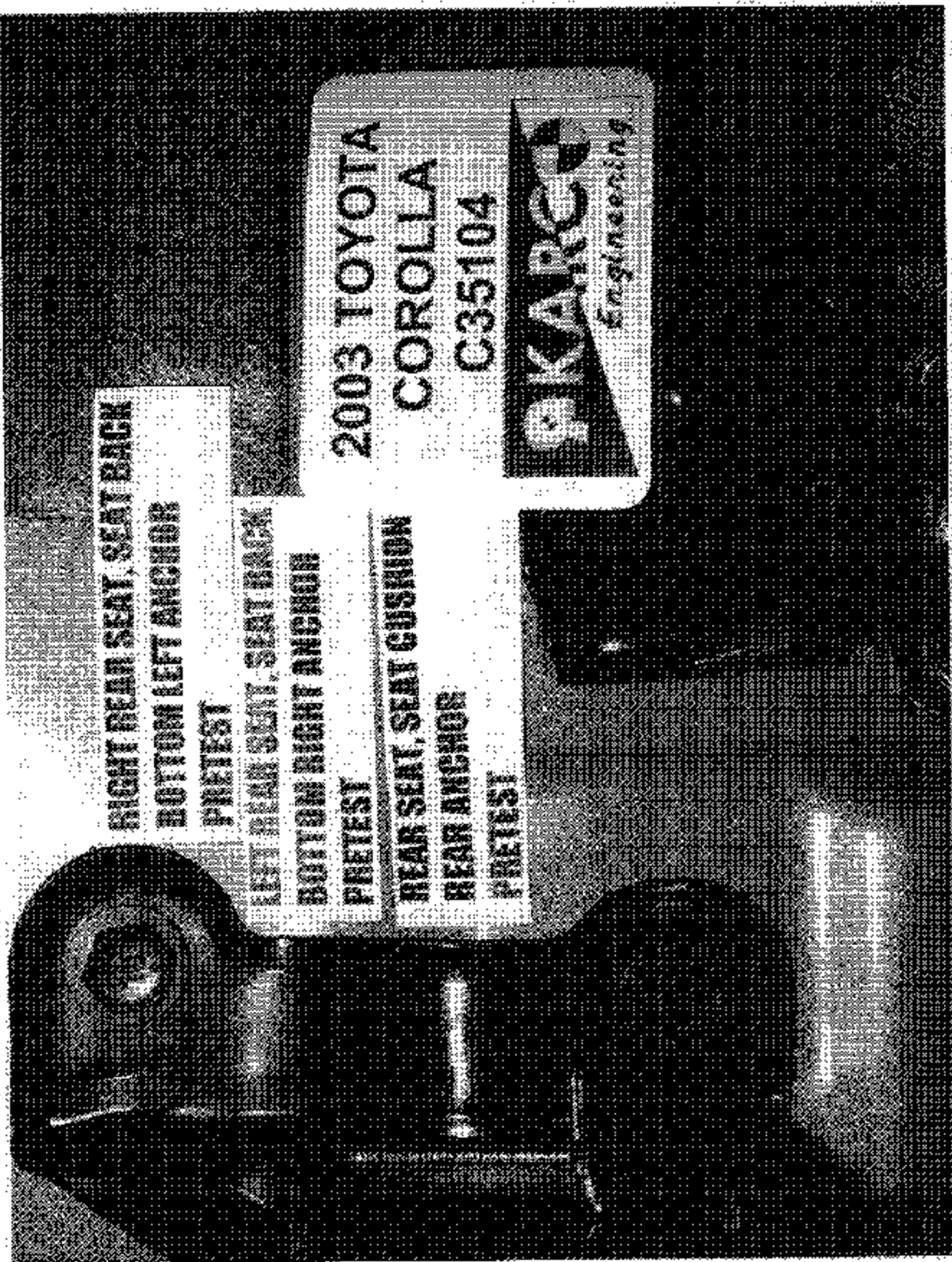


Figure A-91: Floor Pan Anchor, Rear Seat, Seat Cushion, Pre-Test

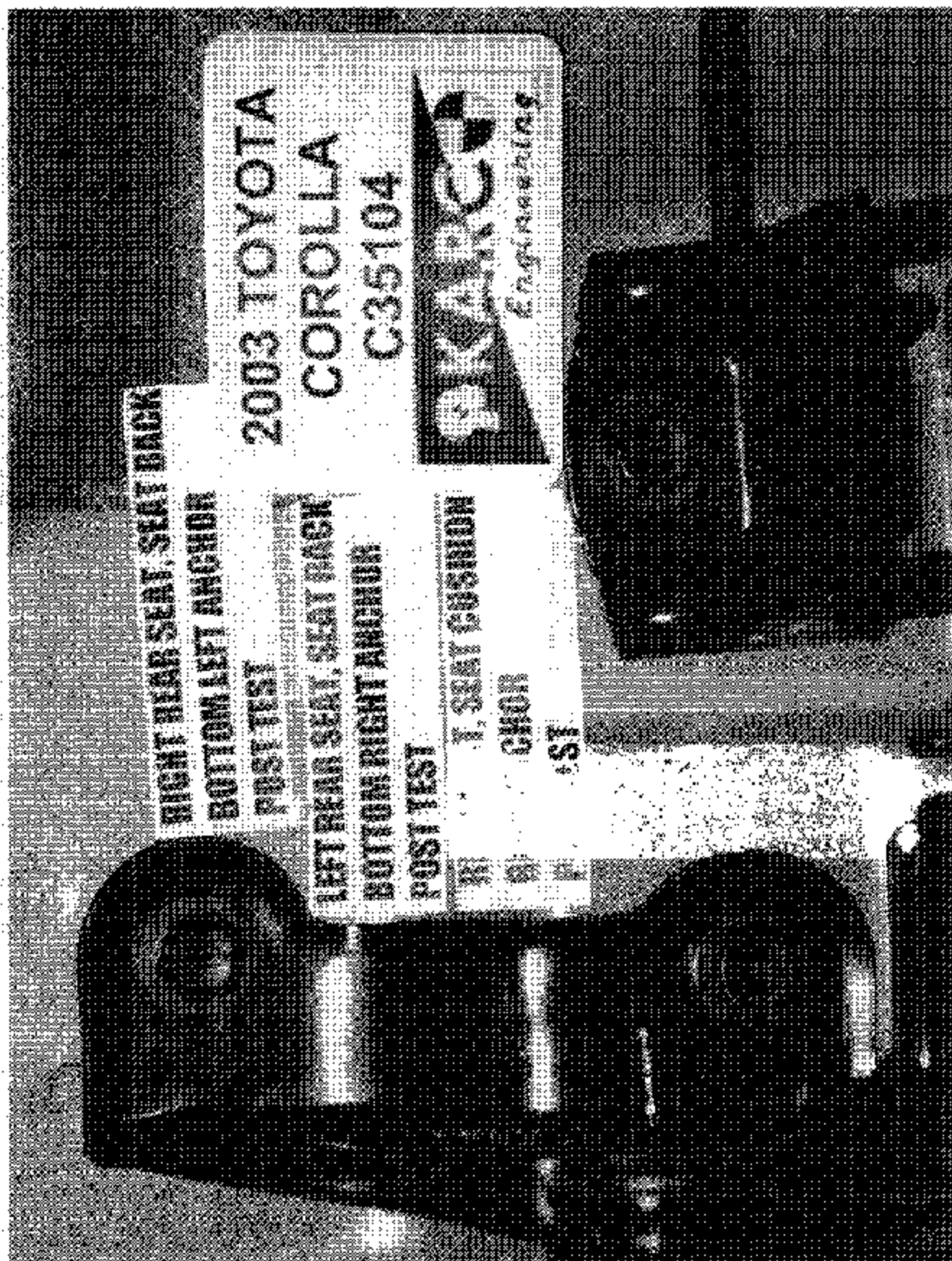


Figure A-92: Floor Pan Anchor, Rear Seat, Seat Cushion, Post-Test



Figure A-93: Seat Anchor, Rear Seat, Seat Cushion, Pre-Test



Figure A-94. Seat Anchor, Rear Seat, Seat Cushion, Post-Test

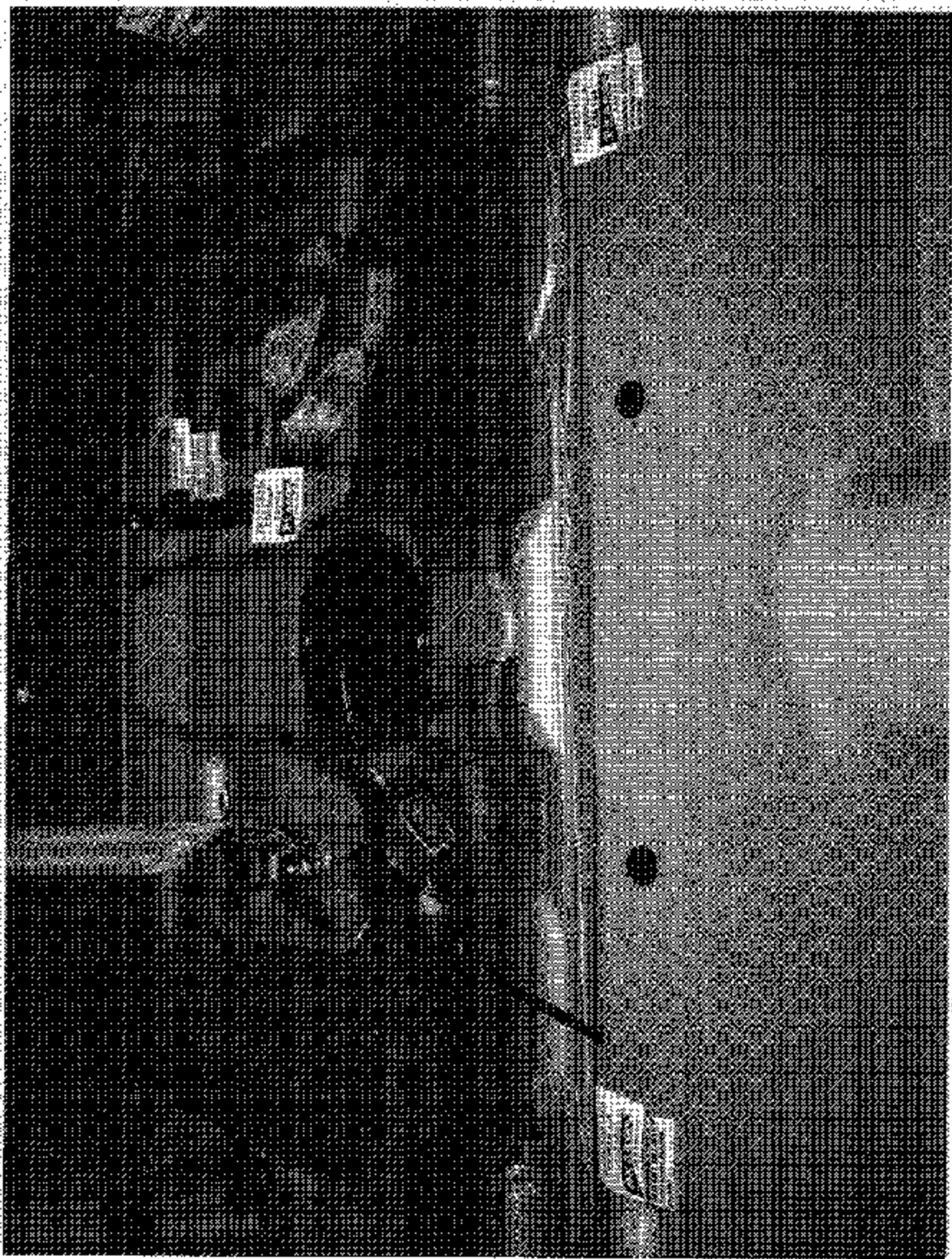
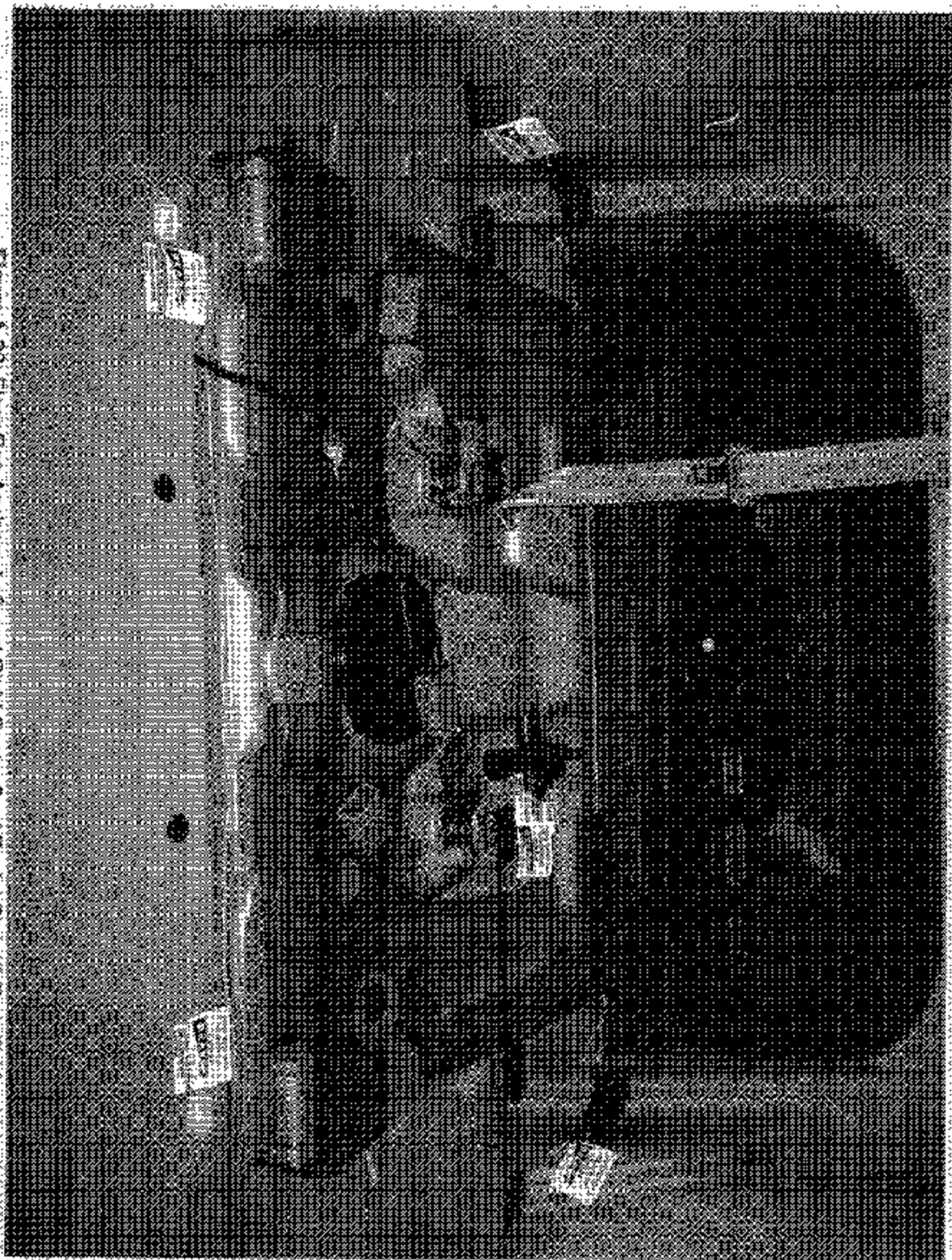


Figure A-95: Floor Pan Anchors, Left and Right Seats, Seat Backs Overall, Pre-Test

Figure A-96: Floor Pan Anchors, Left and Right Seats, Seat Backs Overall, Post-Test



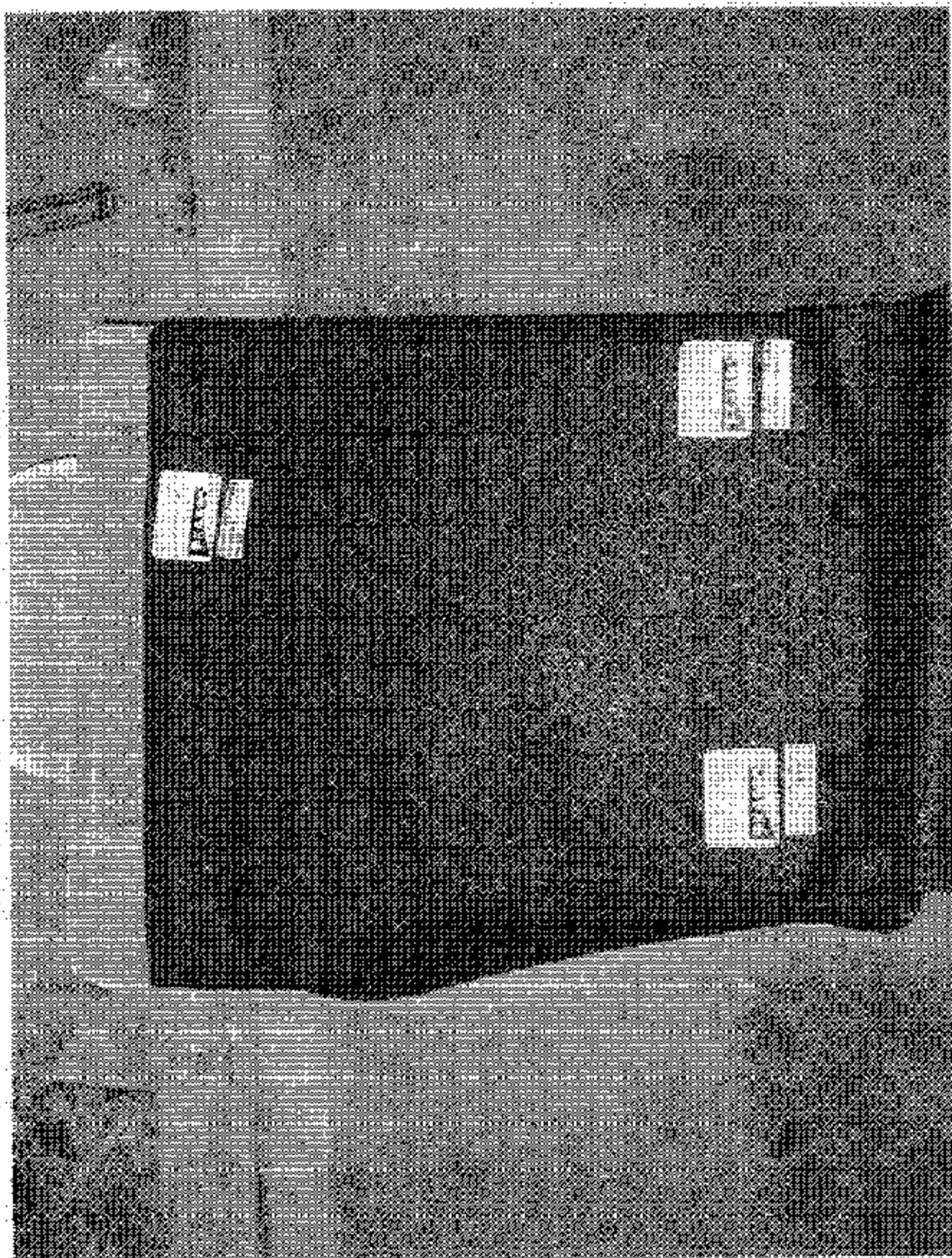


Figure A-97: Seat Anchors, Left Rear Seat, Seat Back, Pre-Test

Figure A-98: Seat Anchors, Left Rear Seat, Seat Back, Post-Test

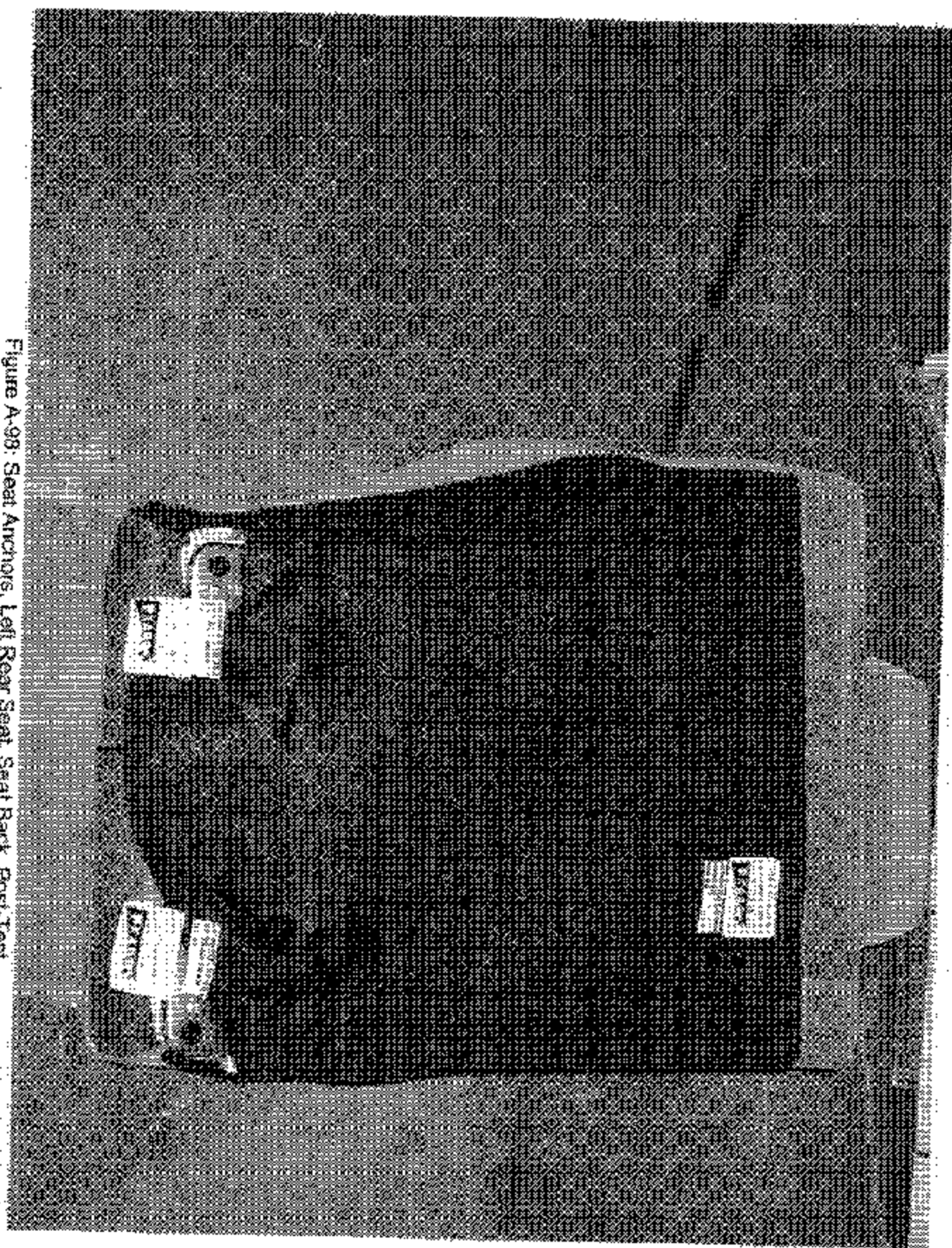




Figure A-99: Floor Pan Anchor, Left Rear Seat, Seat Back, Pro-Test

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**LEFT REAR SEAT, SEAT BACK
BOTTOM LEFT ANCHOR
POST TEST**

Figure A-100: Floor Pan Anchor, Left Rear Seat, Seat Back, Post-Test

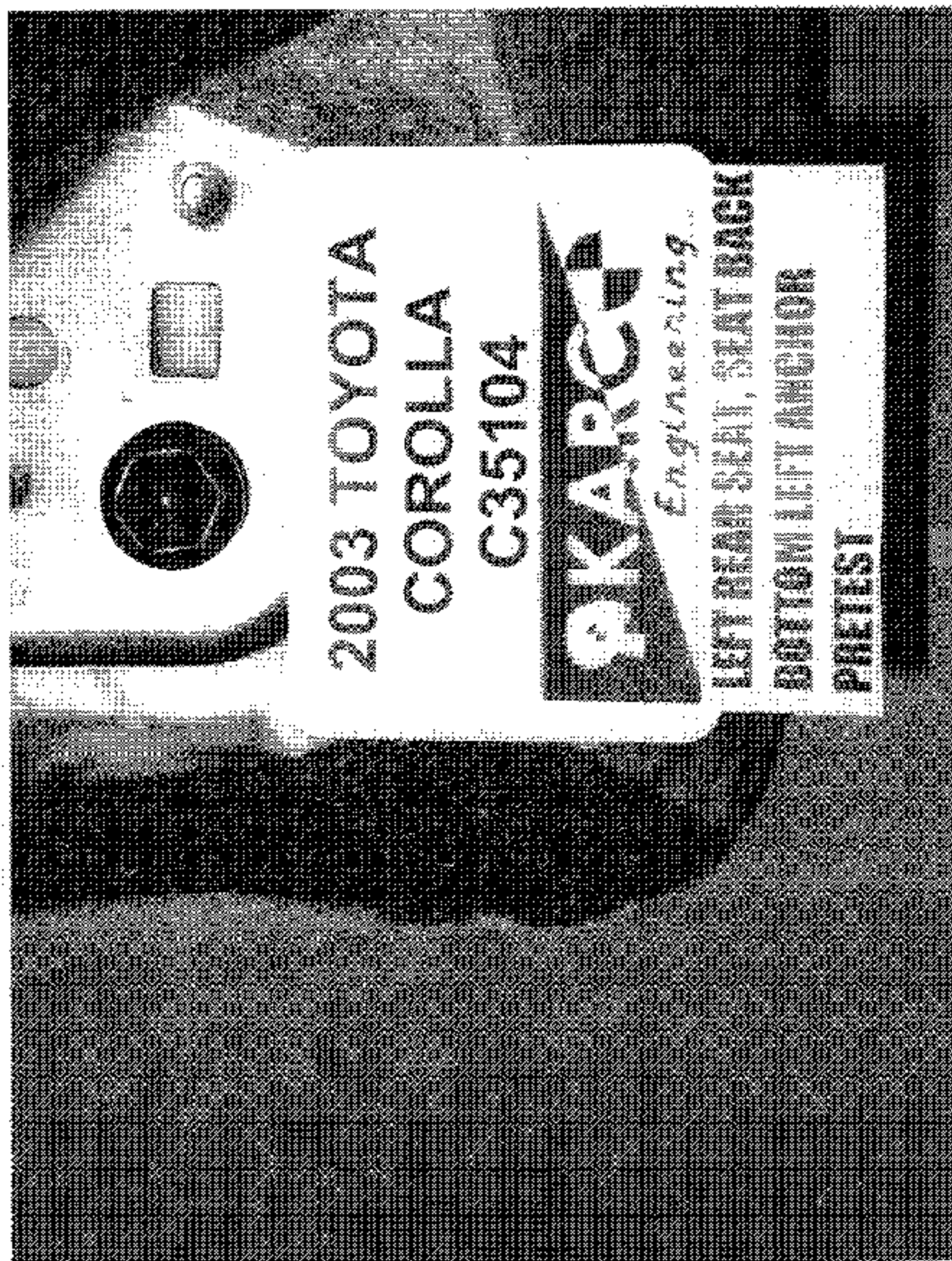


Figure A-101: Seat Anchor, Left Rear Seat, Seat Back, Pre-Test

**LEFT REAR SEAT, SEAT BACK
BOTTOM LEFT ANCHOR
POST TEST**

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Figure A-102: Seat Anchor, Left Rear Seat, Seat Back, Post-Test

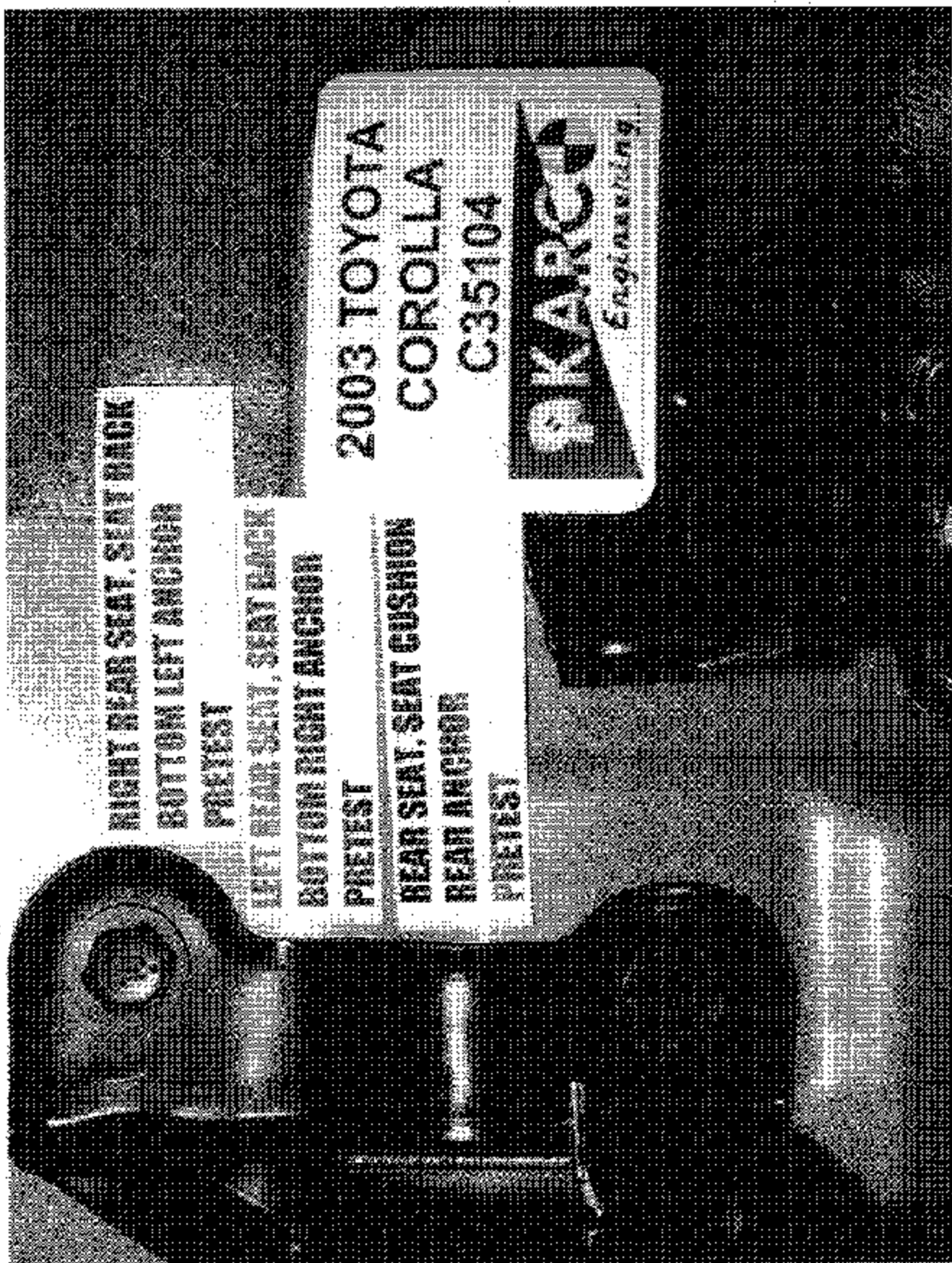


Figure A-103: Floor Pan Anchor, Left Rear Seat, Seat Back, Pre-Test

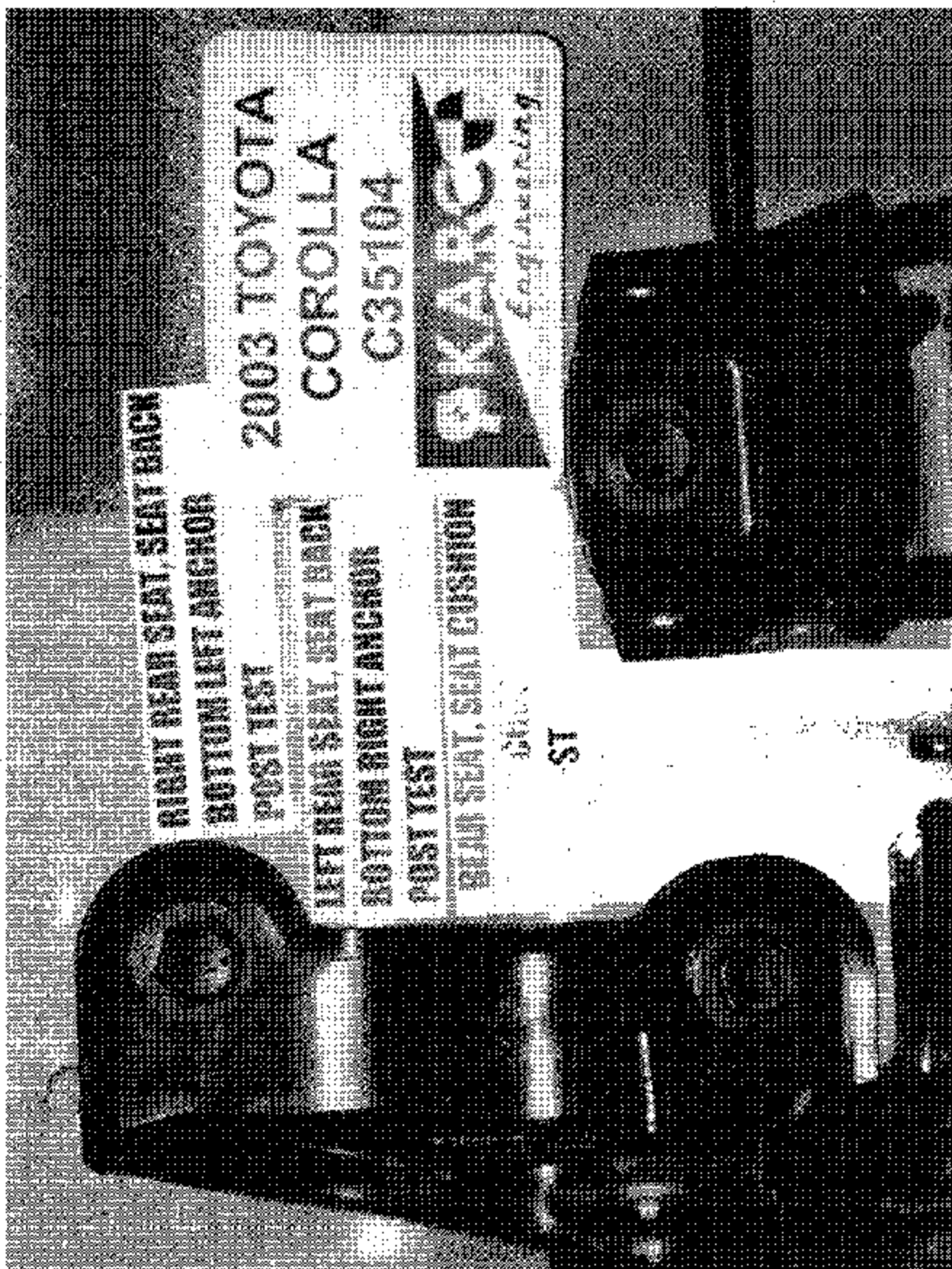


Figure A-104: Floor Pan Anchor, Left Rear Seat, Seat Back, Post-Test



Figure A-105. Seat Anchor, Left Rear Seat, Seal Back, Pre-Test

**LEFT REAR SEAT, SEAT BACK
BOTTOM RIGHT ANCHOR
POST TEST**

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Figure A-106: Seat Anchor, Left Rear Seat, Seat Back, Post-Test

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LEFT REAR SEAT, SEAT BACK
TOP ANCHOR
PRETEST

Figure A-107: Floor Pan Anchor, Left Rear Seat, Seat Back, Pre-Test

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LEFT REAR SEAT, SEAT BACK
TOP ANCHOR
POST TEST

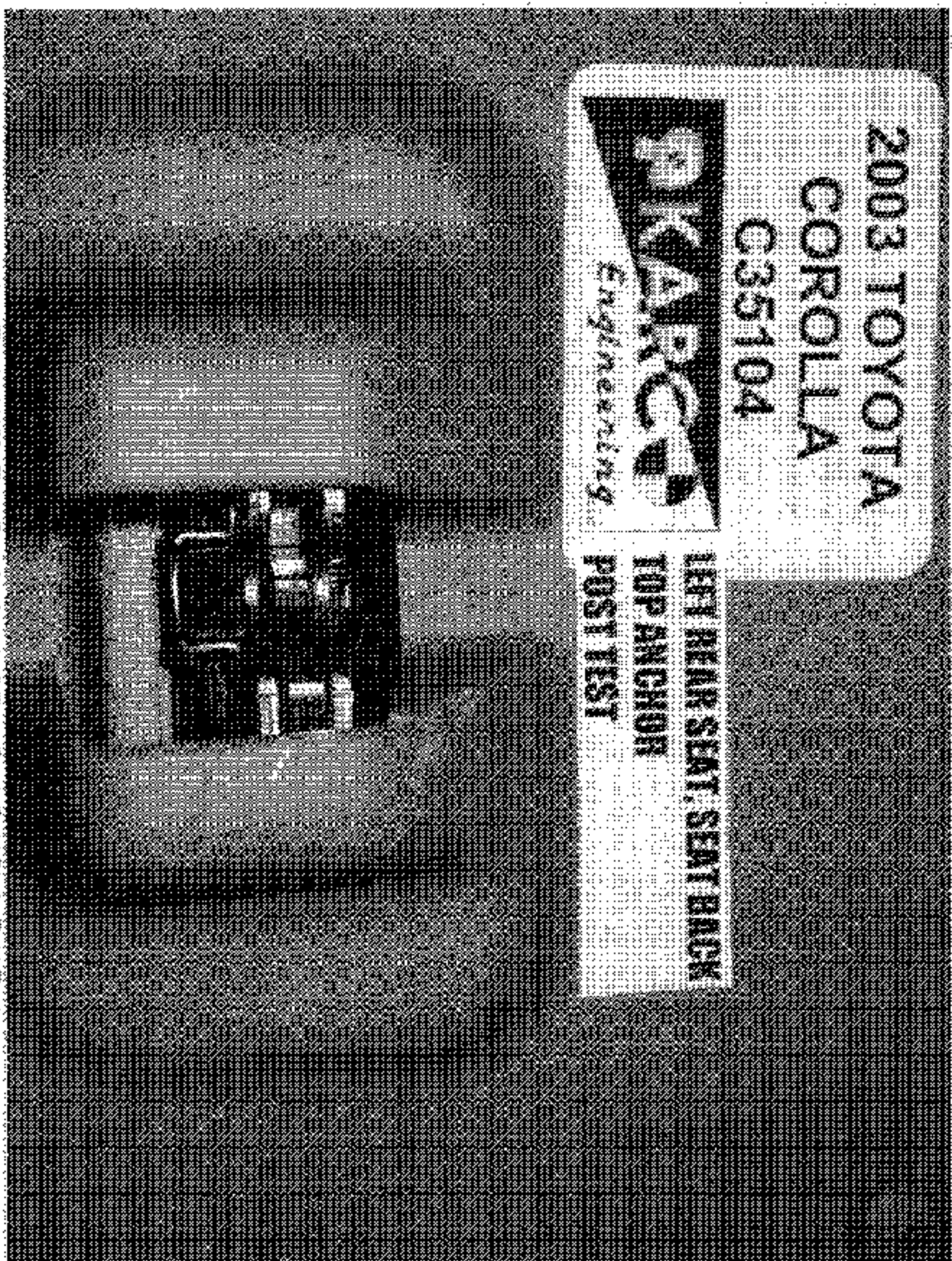


Figure A-108: Floor Pan Anchor, Left Rear Seat, Seat Back, Post-Test

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LEFT REAR SEAT, SEAT BACK

TOP ANCHOR

PRETEST

Figure A-109: Seat Anchor, Left Rear Seat, Seat Back, Pre-Test

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LEFT REAR SEAT, SEAT BACK

SEAT ANCHOR

POST TEST

Figure A-110: Seat Anchor, Left Rear Seat, Seat Back, Post-Test



Figure A-111: Floor Pan Anchor, Left and Right Rear Seats, Seat Backs Overall, Pre-Test

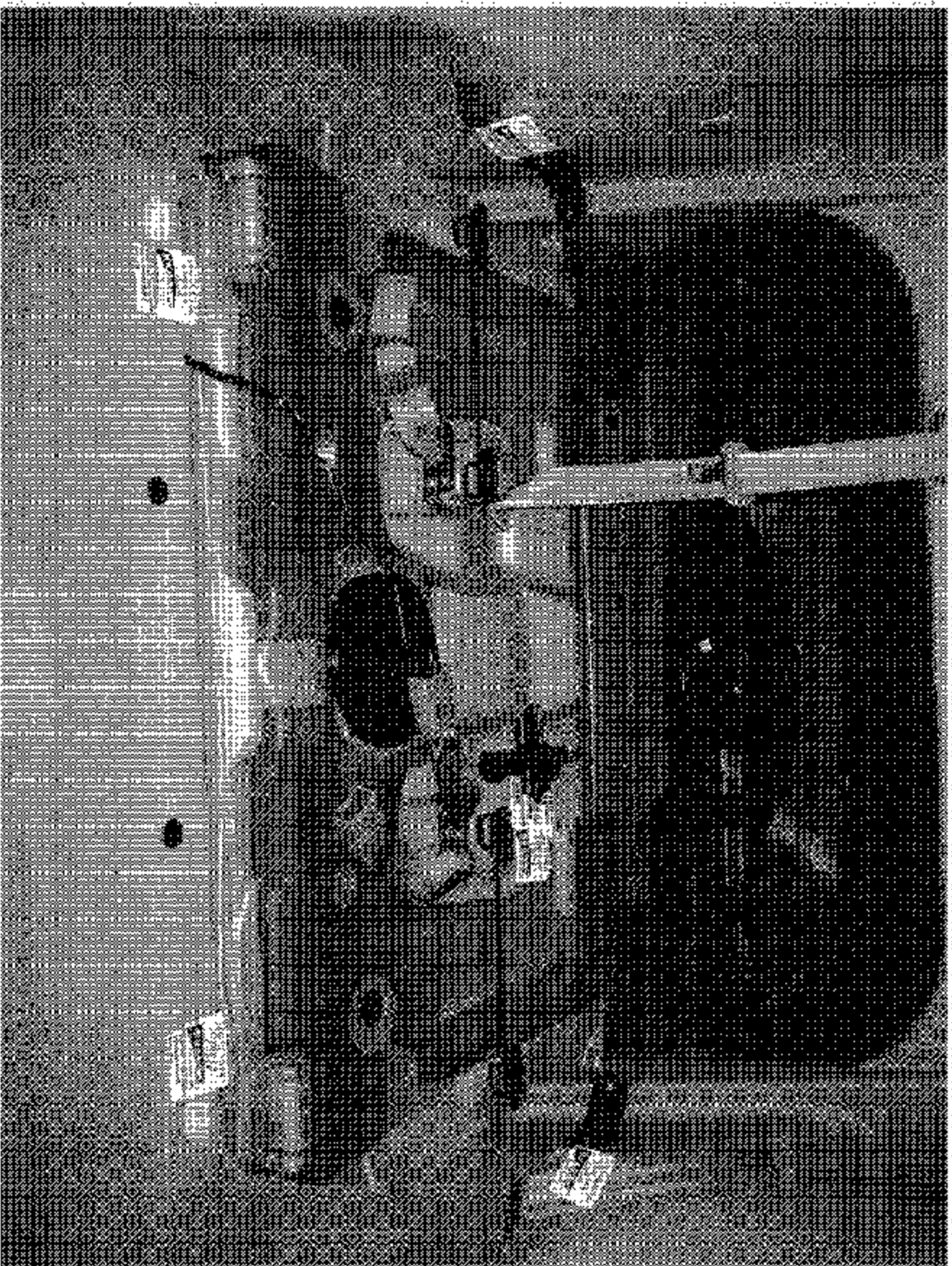


Figure A-112: Floor Pan Anchor, Left and Right Rear Seats, Seat Backs Overall, Post-Test

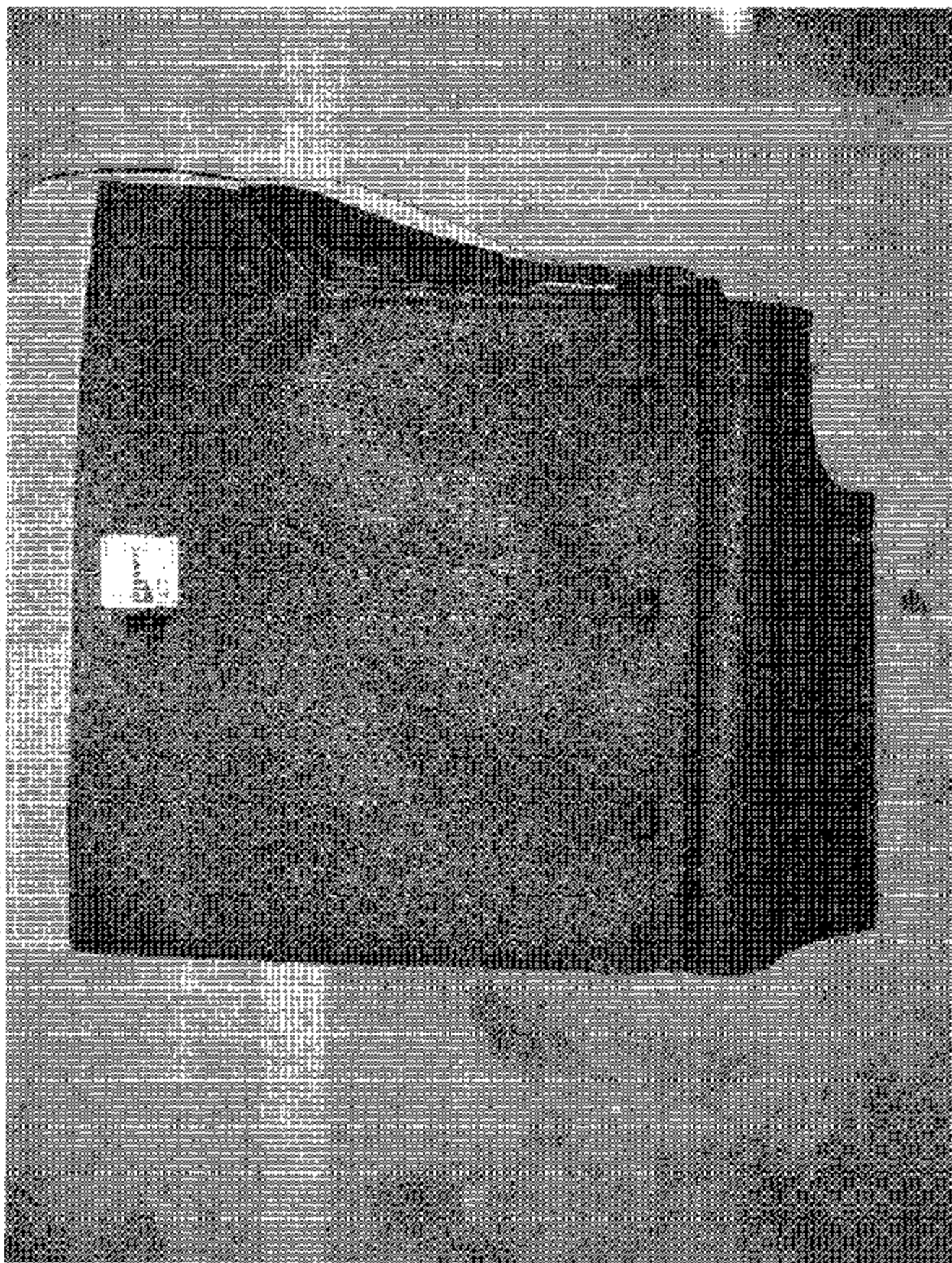


Figure A-113: Seat Anchors, Right Rear Seat, Seat Back, Pre-Test

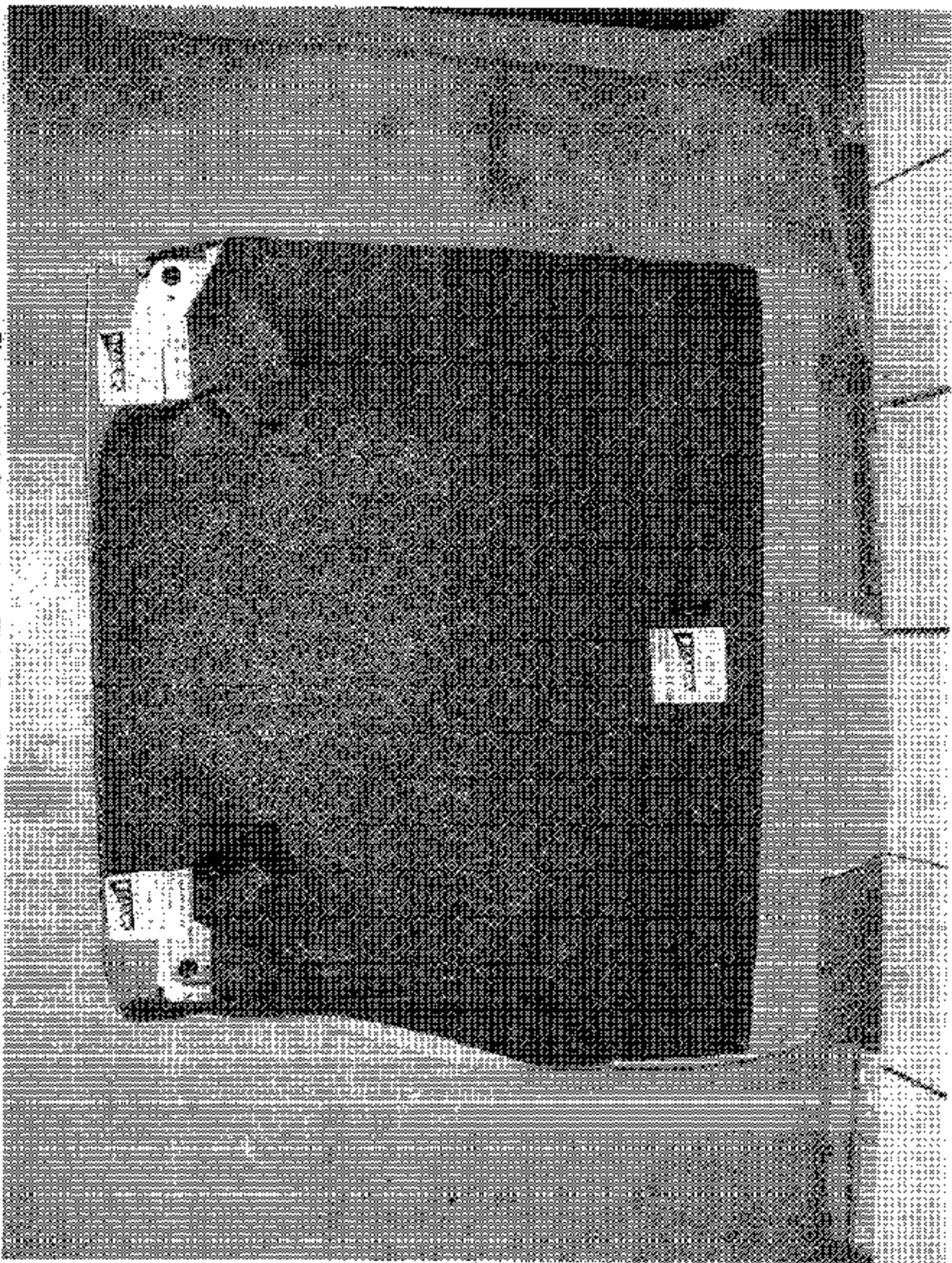


Figure A-114. Seat Anchors, Right Rear Seat, Seat Back, Post-Test

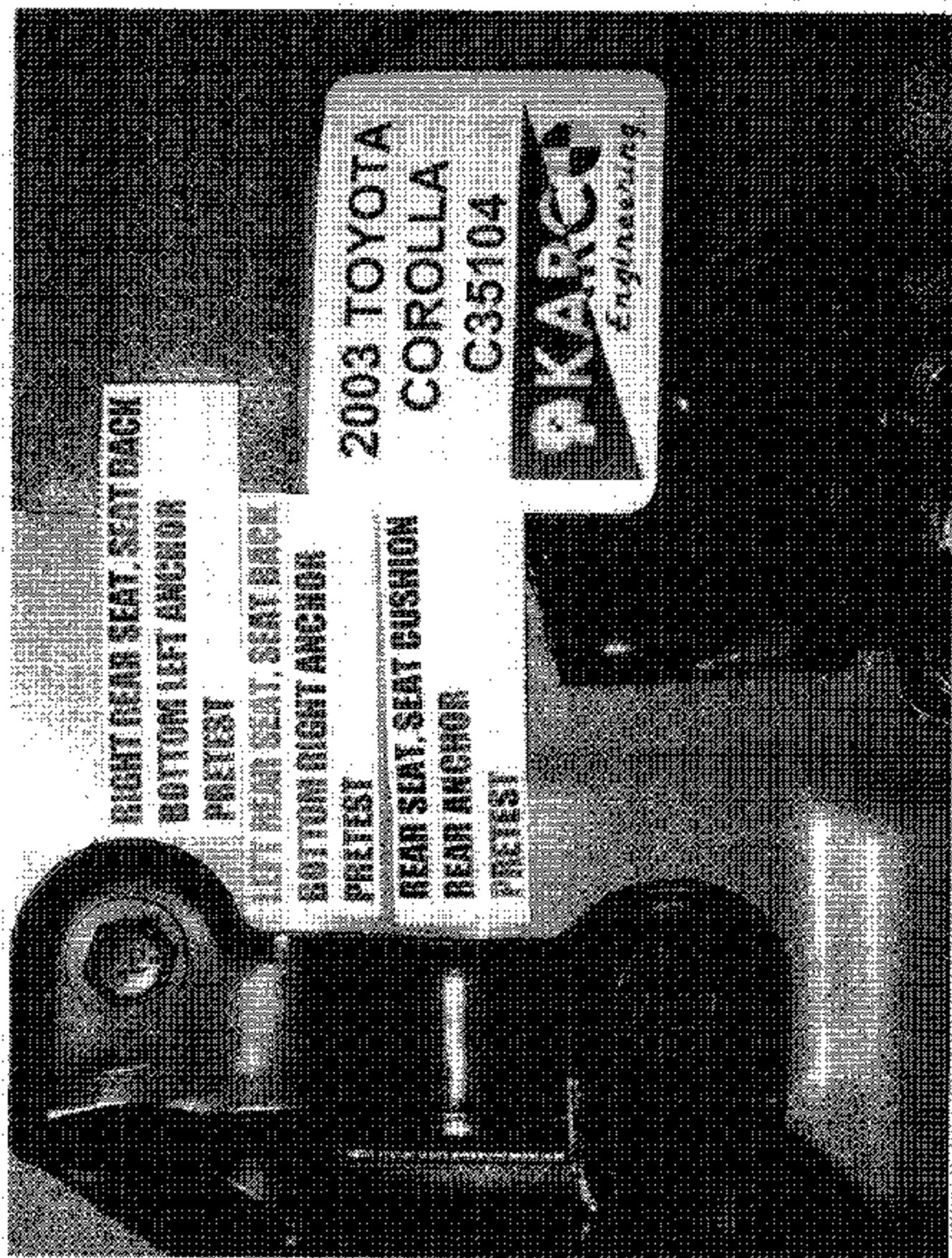


Figure A-115: Floor Pan Anchor, Right Rear Seat, Seat Back, Pre-Test

RIGHT REAR SEAT, SEAT BACK
BOTTOM LEFT ANCHOR
POST TEST

LEFT REAR SEAT, SEAT BACK
BOTTOM RIGHT ANCHOR
POST TEST

REAR SEAT, SEAT CUSHION
HEAD ANCHOR
POST TEST

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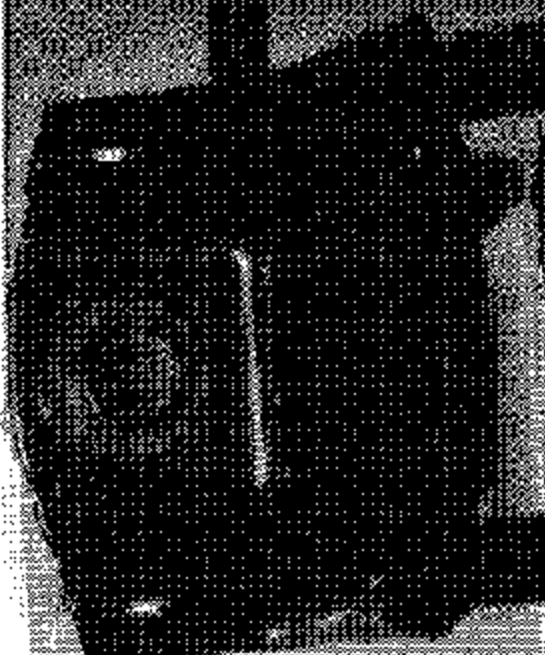


Figure A-116: Floor Pan Anchor, Right Rear Seat, Seat Back, Post-Test

**RIGHT REAR SEAT, SEAT BACK
BOTTOM LEFT ANCHOR
PRETEST**

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Figure A-117: Seat Anchor, Right Rear Seat, Seat Back, Pre-Test

**RIGHT REAR SEAT, SEAT BACK
BOTTOM TETHER ANCHOR
POST TEST**

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Figure A-118: Seat Anchor, Right Rear Seat, Seat Back, Post-Test



Figure A-119: Floor Pan Anchor, Right Rear Seat, Seat Back, Pre-Test

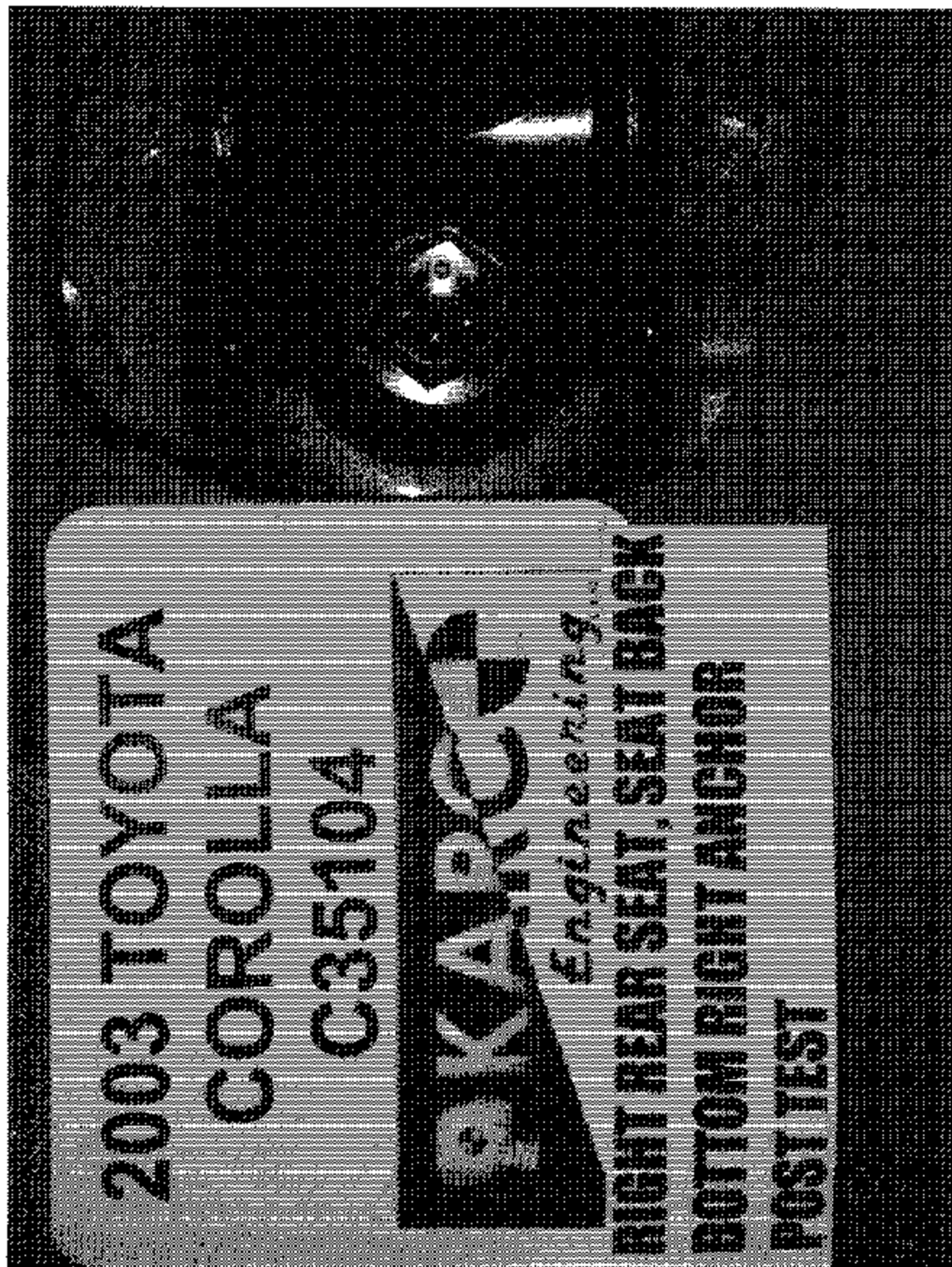


Figure A-120: Floor Pan Anchor, Right Rear Seat, Seat Back, Post-Test

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RIGHT REAR SEAT, SEAT BACK

BOTTOM RIGHT ANCHOR

PRETEST



Figure A-121: Seat Anchor, Right Rear Seat, Seat Back, Pre-Test

**RIGHT REAR SEAT, SEAT BACK
BOTTOM RIGHT ANCHOR
POST TEST**

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Figure A-122. Seat Anchor, Right Rear Seat, Seat Back, Post-Test

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RIGHT REAR SEAT, SEAT BACK
TOP ANCHOR
PRETEST

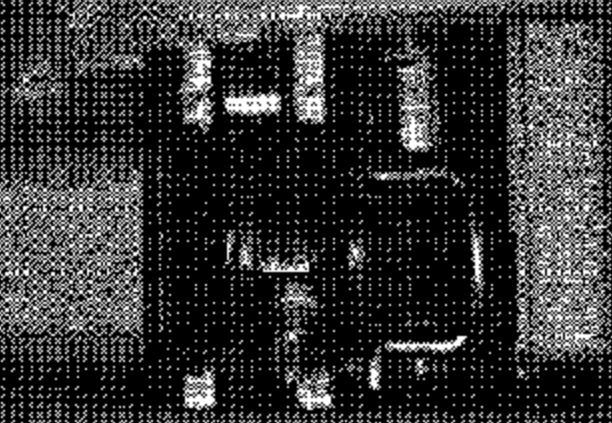


Figure A-123: Floor Pan Anchor, Right Rear Seat, Seat Back, Pre-Test

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RIGHT REAR SEAT, SEAT BACK
TOP ANCHOR
POST TEST



Figure A-124. Floor Pan Anchor, Right Rear Seat, Seat Back, Post-Test

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RIGHT REAR SEAT SEAT BACK

TOP ANCHOR

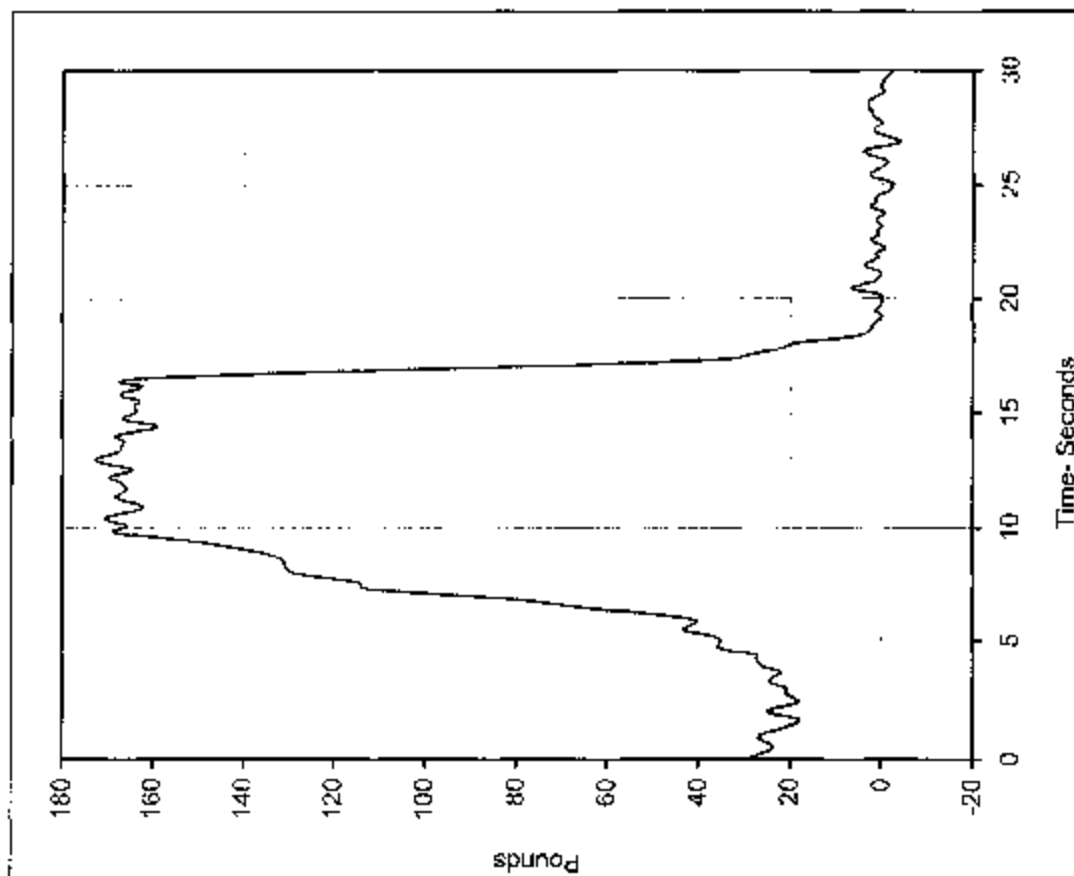
PRETEST

Figure A-125: Seat Anchor, Right Rear Seat, Seat Back, Pre-Test



Figure A-126: Seat Anchor, Right Rear Seat, Seat Back, Post-Test.

APPENDIX B
DATA PLOTS



Curve Description	CURNO	Type
Drvr. Upper X-Member	001	FIL

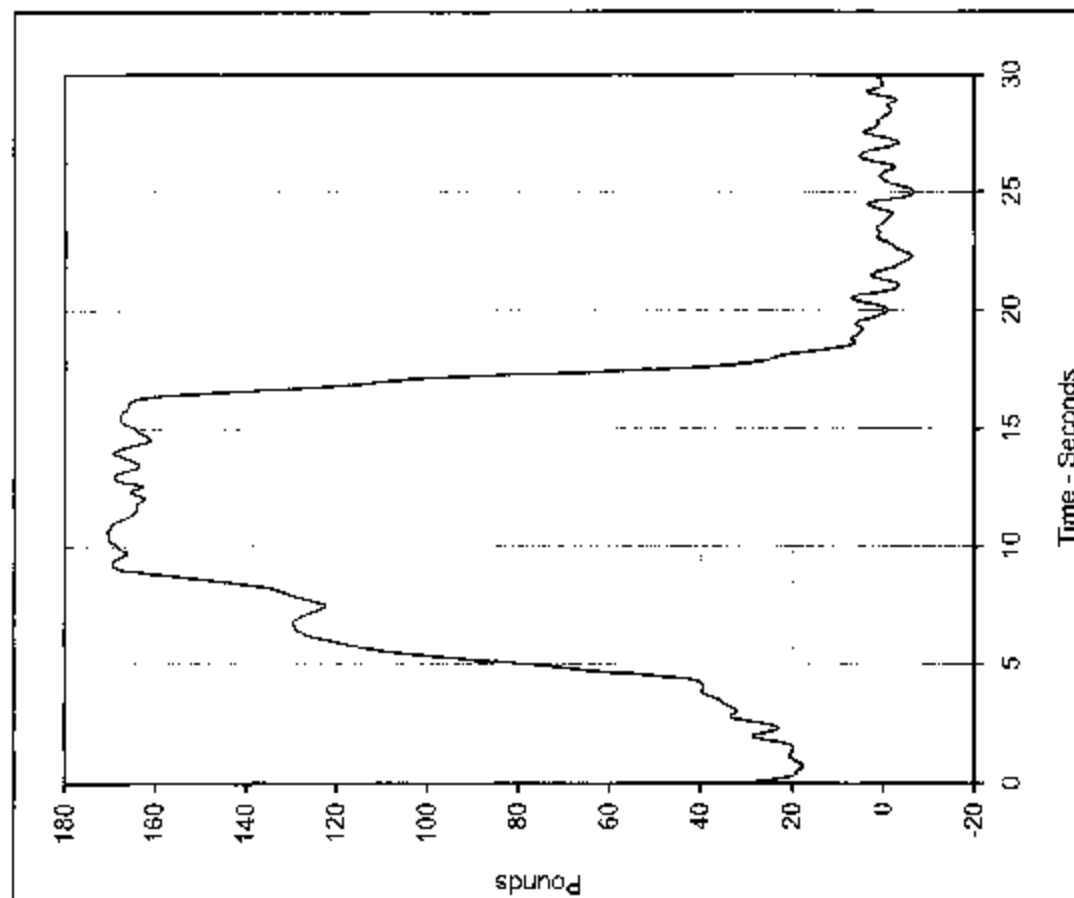
Units	Max	Time	Min	Time	Filter (Hz)
Pounds	172.8	13.0	-3.8	26.9	1

Test Program:

FMVSS 207 Air Moment (Front)

Test Vehicle:

2003 Toyota Corolla 4 Door Sedan



Curve Description	CURNO	Type
Pass. Upper X-Member	002	FIL

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	170.6	10.6	-6.7	25.0	1

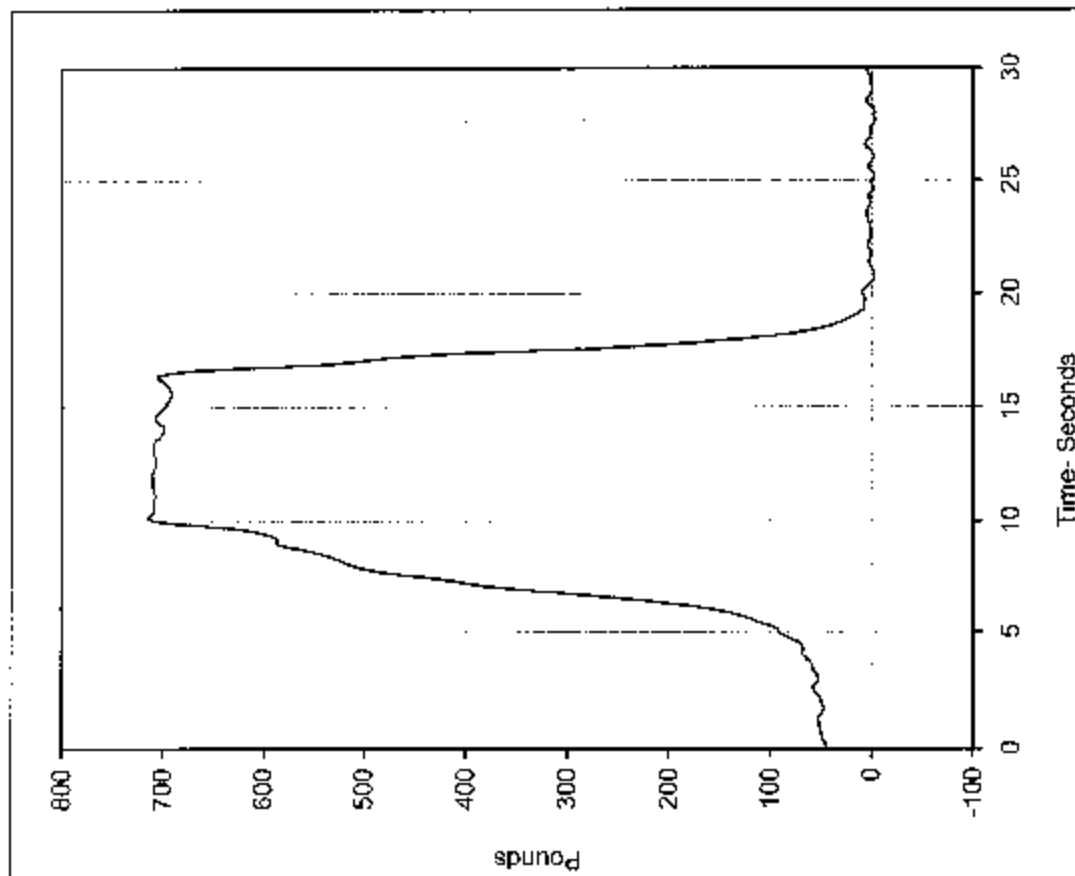
Test Date:

8/5/03

Project No.:

C35104

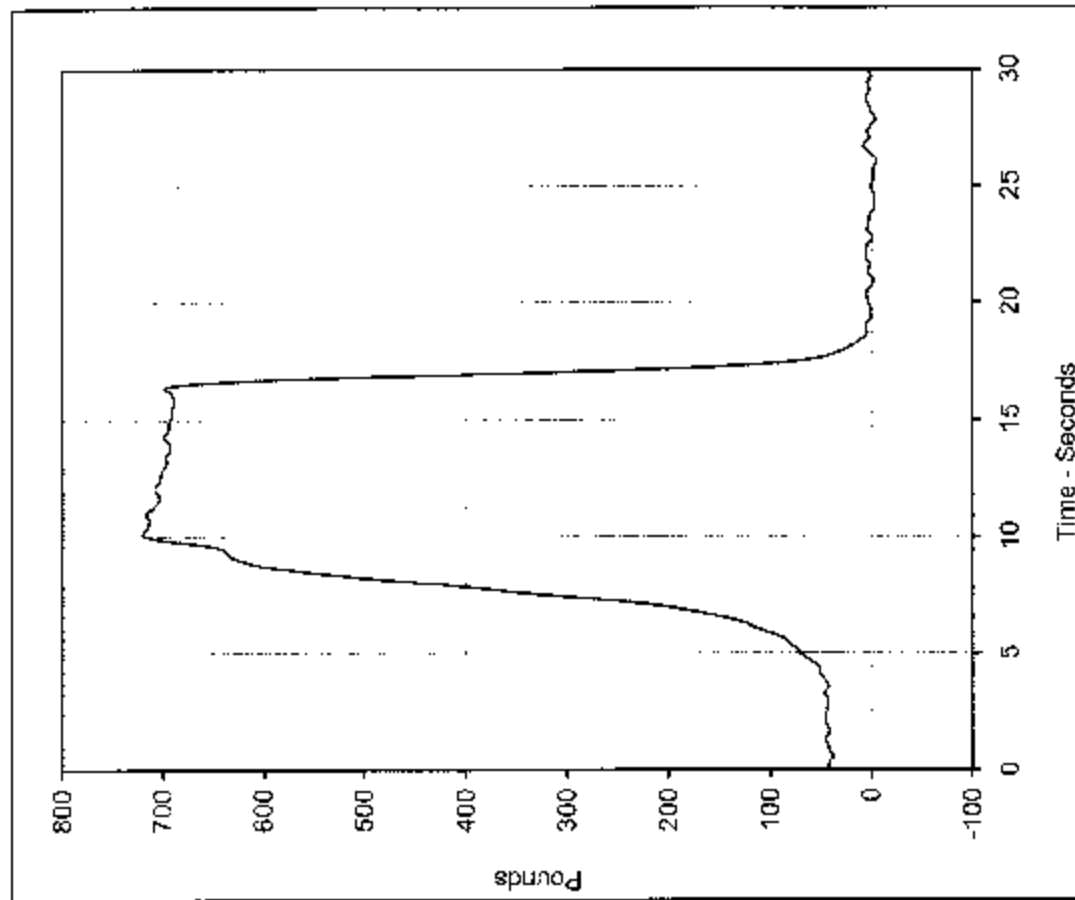




Curve Description		CURNO	Type	
Driver Seat Frame		001	FIL	

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	714.0	10.2	-3.2	27.8	1

Test Program: FMVSS 207 Aft Seat Frame and Adjusters (Front)
 Test Vehicle: 2003 Toyota Corolla 4 Door Sedan

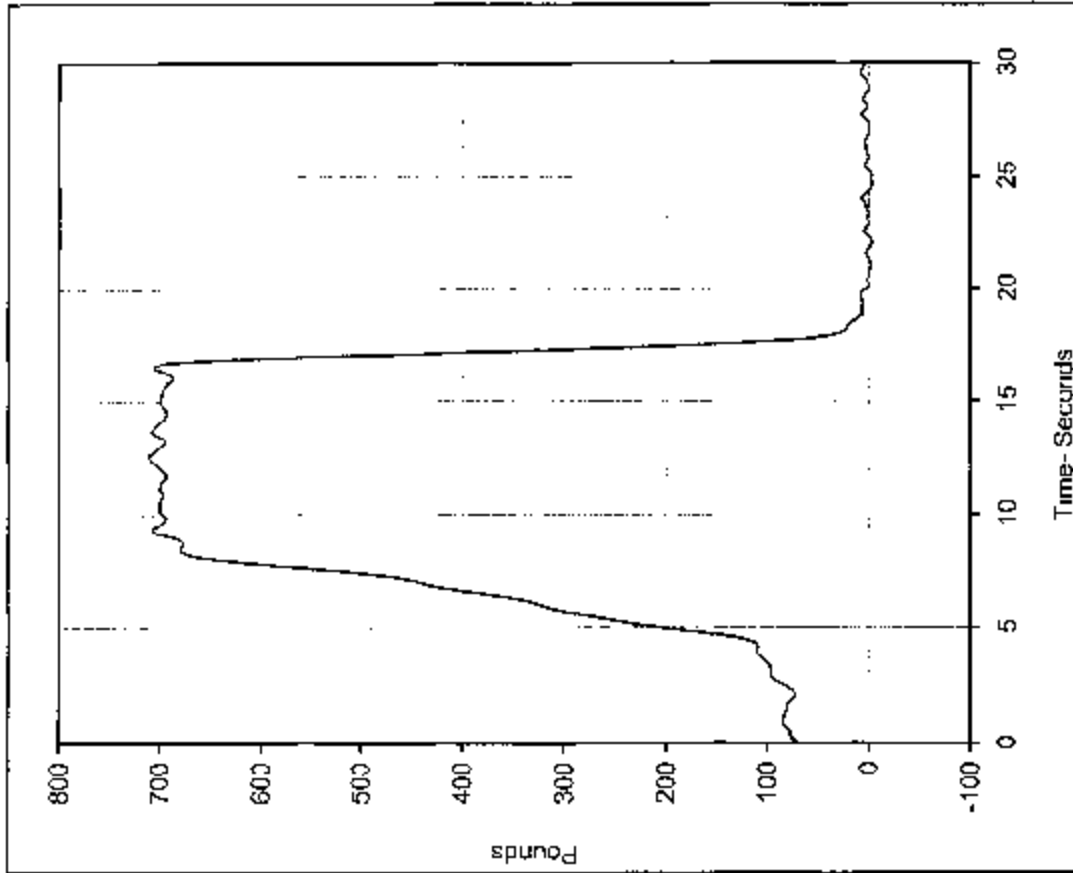


Curve Description		CURNO	Type	
Pass. Seat Frame		002	FIL	

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	720.0	10.2	-5.2	26.0	1

Test Date: 8/5/03
 Project No.: C35104

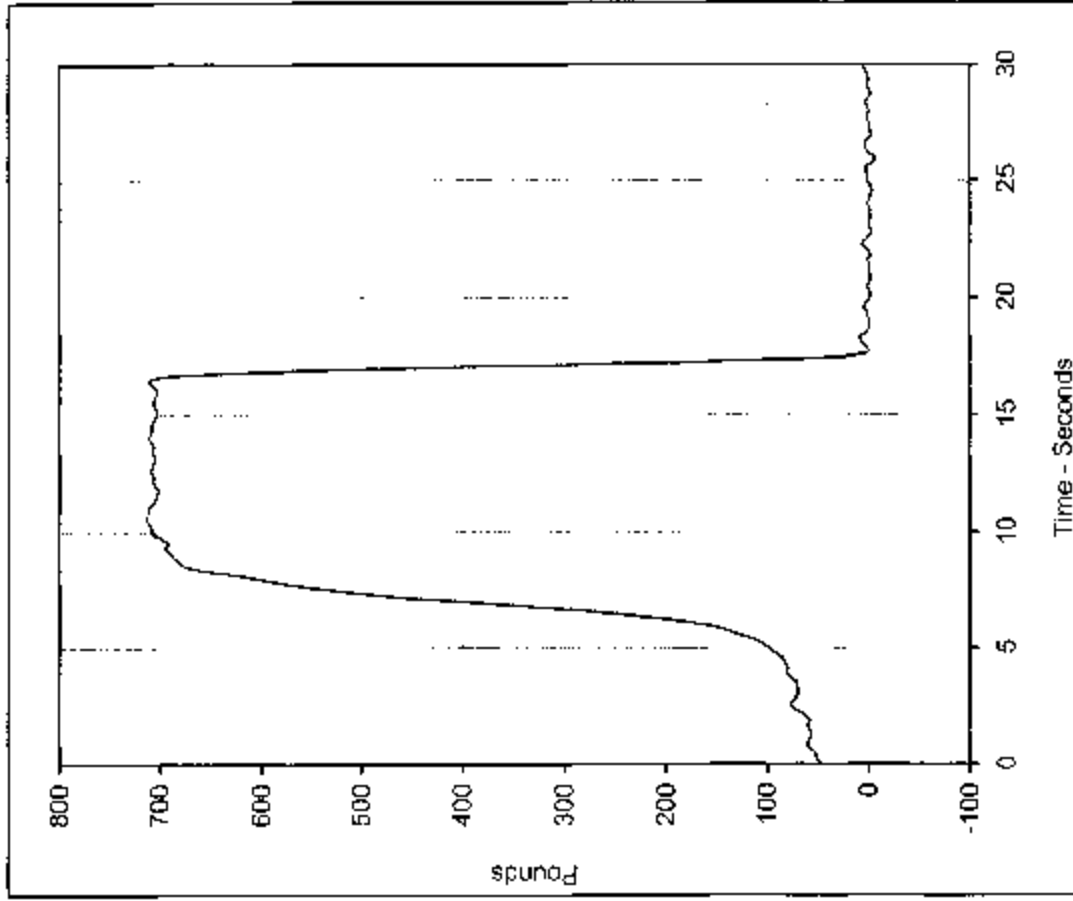




Curve Description	CURNO	Type
Driver Seat Frame	001	FIL

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	710.9	12.6	-3.7	24.7	1

Test Program: FMVSS 207 Forward Seat Frame and Adj. (Front)
 Test Vehicle: 2003 Toyota Corolla 4 Door Sedan

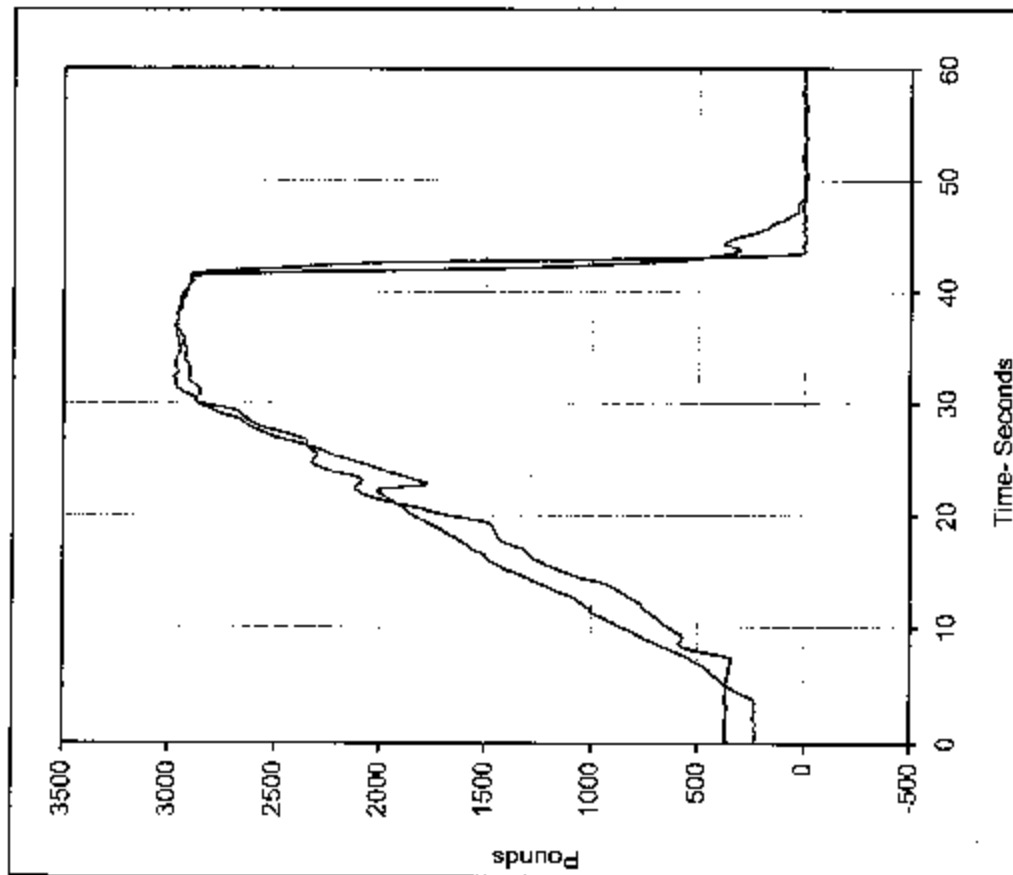


Curve Description	CURNO	Type
Pass. Seat Frame	002	FIL

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	713.6	10.6	-6.6	25.9	1

Test Date: 8/5/03
 Project No.: C35104





Curve Description	CURNO	Type
Driver Lap Belt Force	001	FIL
Driver Shoulder Belt Force	002	FIL

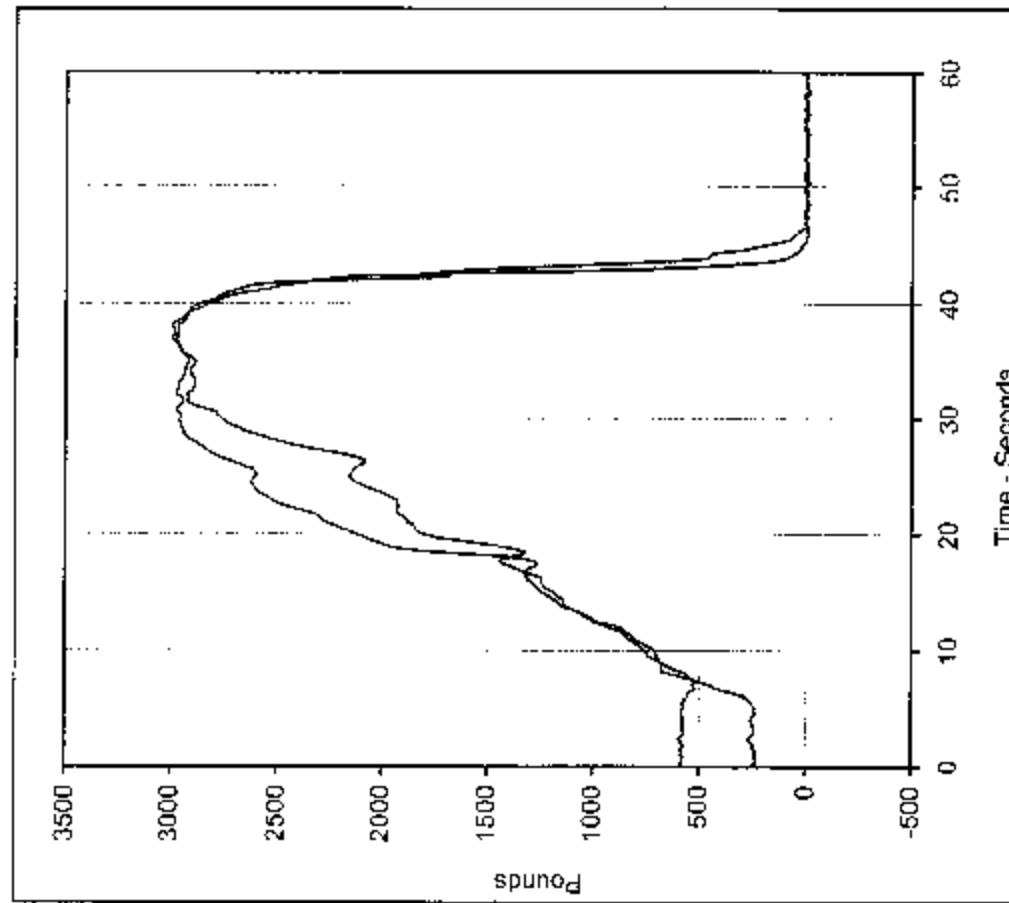
Units	Max	Time	Min	Time	Filter (Hz)
Pounds	2970.7	37.0	-7.0	44.8	1
Pounds	2977.5	32.4	-10.6	50.5	1

Test Program:

FMVSS 207/210 Front Seats

Test Vehicle:

2003 Toyota Corolla 4 Door Sedan



Curve Description	CURNO	Type
Pass. Lap Belt Force	004	FIL
Pass. Shoulder Belt Force	005	FIL

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	2970.9	36.8	-8.0	48.5	1
Pounds	2994.0	37.0	-8.3	58.3	1

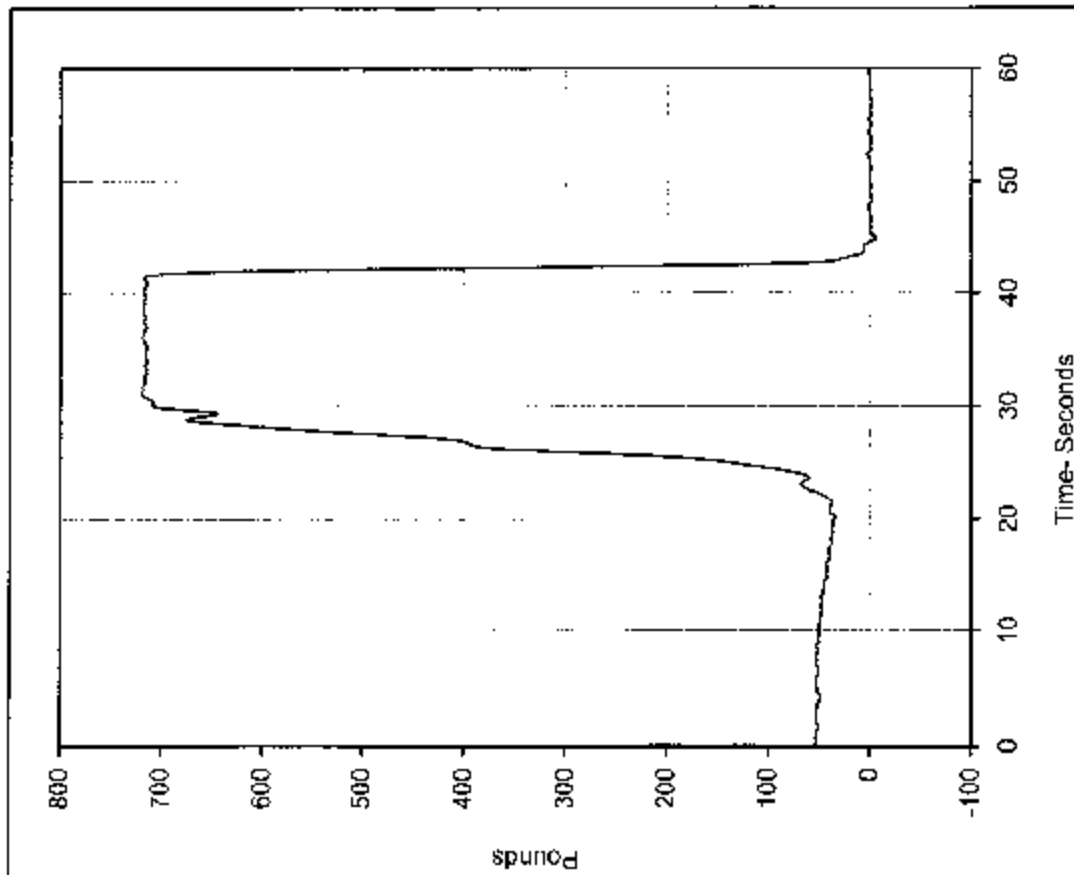
Test Date:

8/6/03

Project No.:

C35104





Curve Description	CURNO	Type
Driver Seat Force	003	FIL

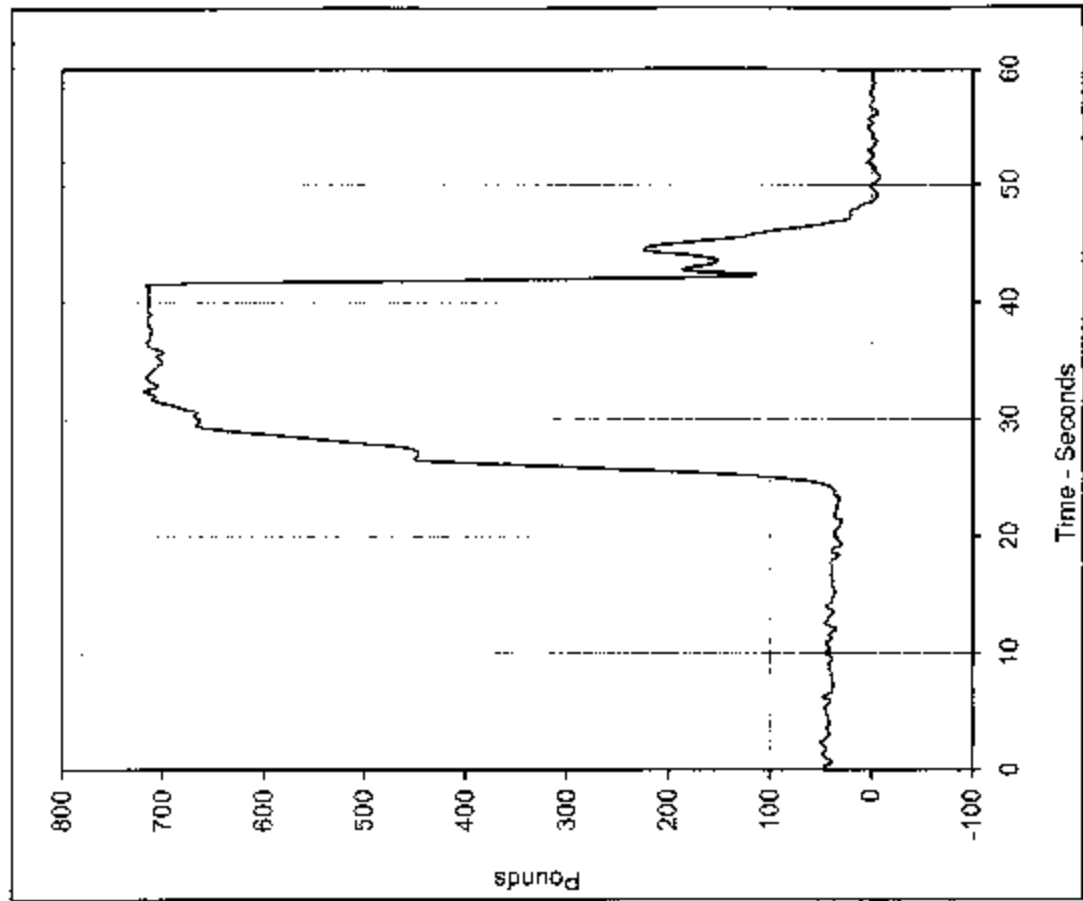
Units	Max	Time	Min	Time	Filter (Hz)
Pounds	719.2	31.1	-4.8	44.9	1

Test Program:

FMVSS 207/210 Front Seats

Test Vehicle:

2003 Toyota Corolla 4 Door Sedan



Curve Description	CURNO	Type
Pass. Seat Force	006	FIL

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	717.9	32.5	-8.4	50.6	1

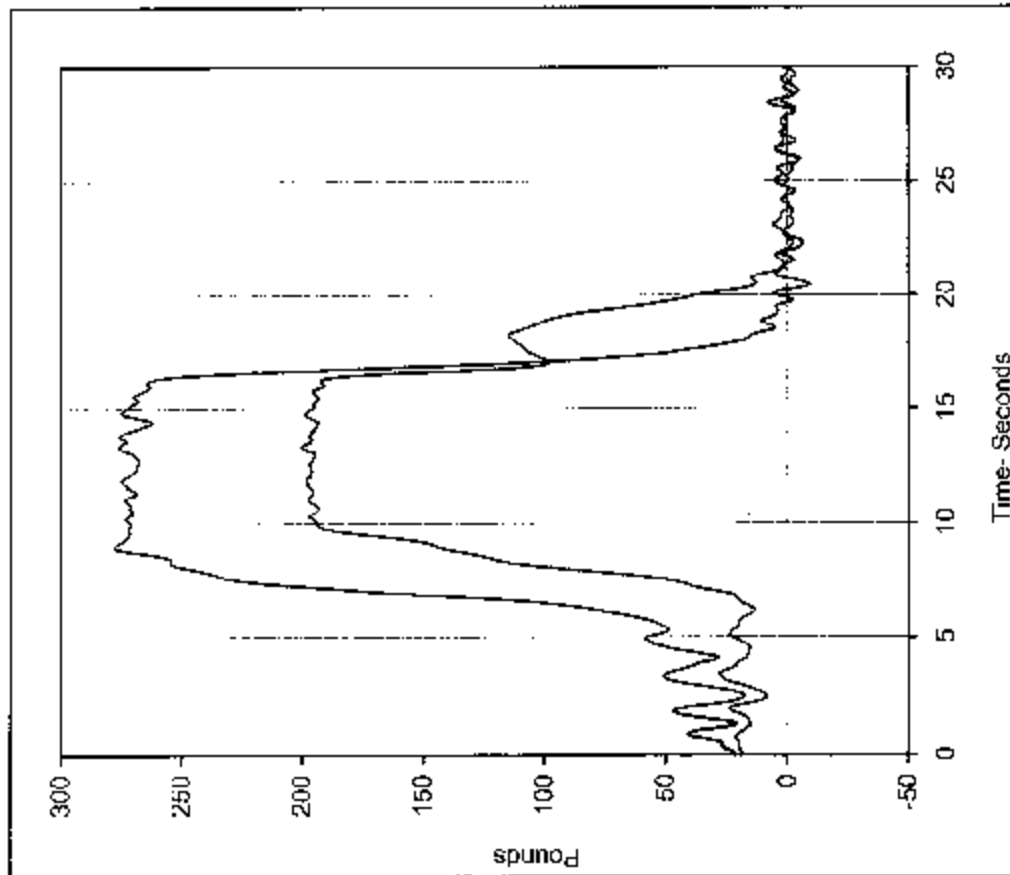
Test Date:

8/6/03

Project No.:

C35104

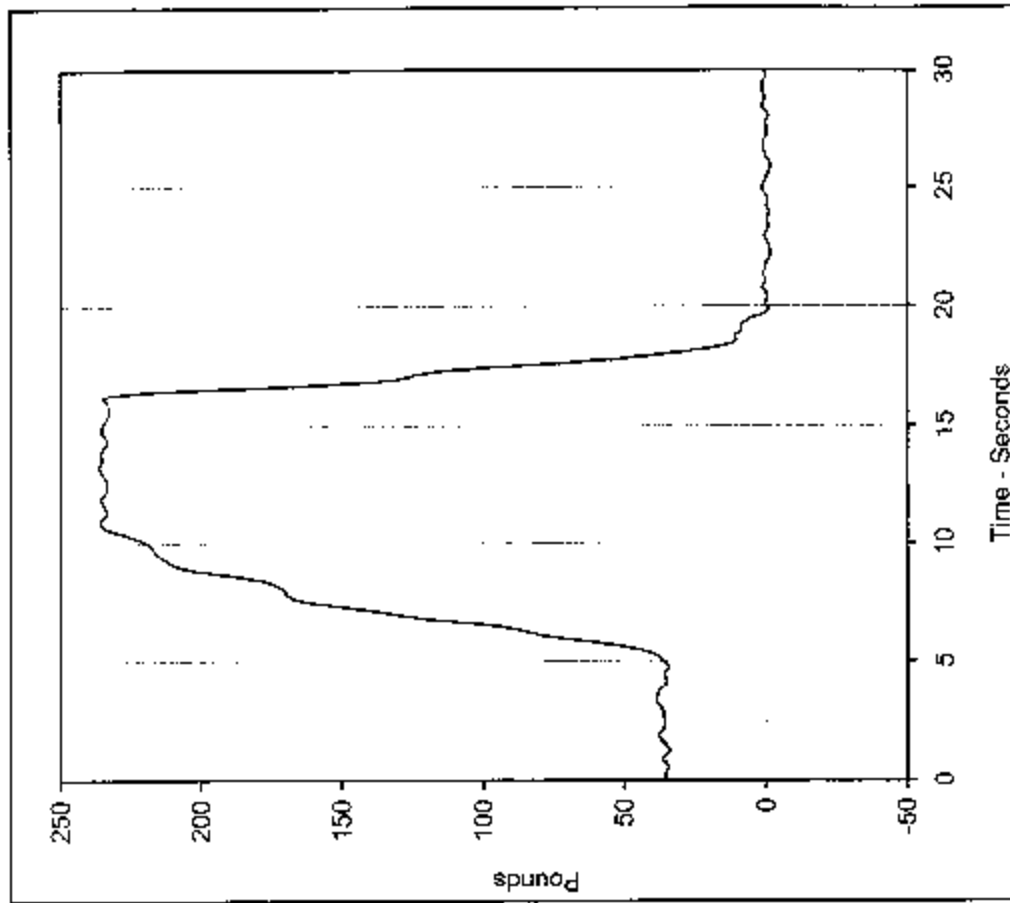




Curve Description	CURNO	Type
Left Rear Pass. Seat Back	001	FIL
Right Rear Pass. Seat Back	002	FIL

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	199.9	13.4	-6.3	22.3	1
Pounds	277.8	9.0	-9.2	20.5	1

Test Program: FMVSS 207 Aft Seat Back and Seat Cushions (Rear)
 Test Vehicle: 2003 Toyota Corolla 4 Door Sedan

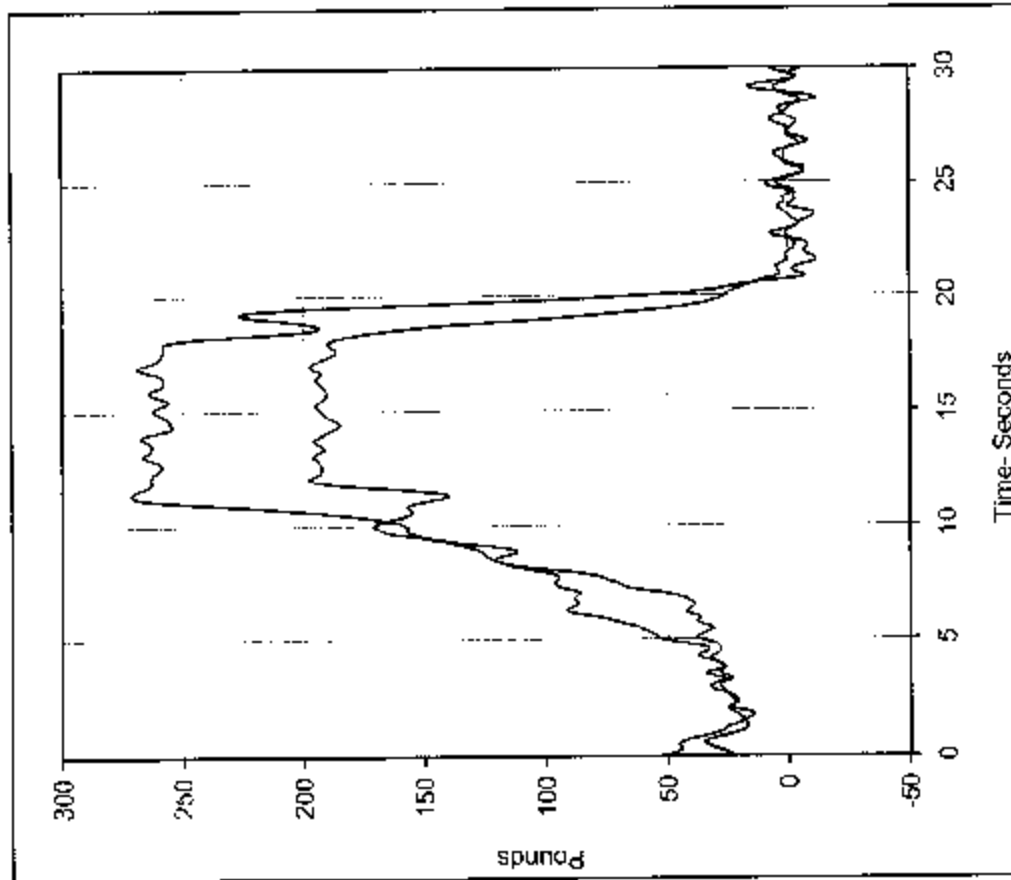


Curve Description	CURNO	Type
Center Rear Pass. Seat Cushion	003	FIL

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	236.4	13.3	-1.5	22.2	1

Test Date: 8/7/03
 Project No.: C35104

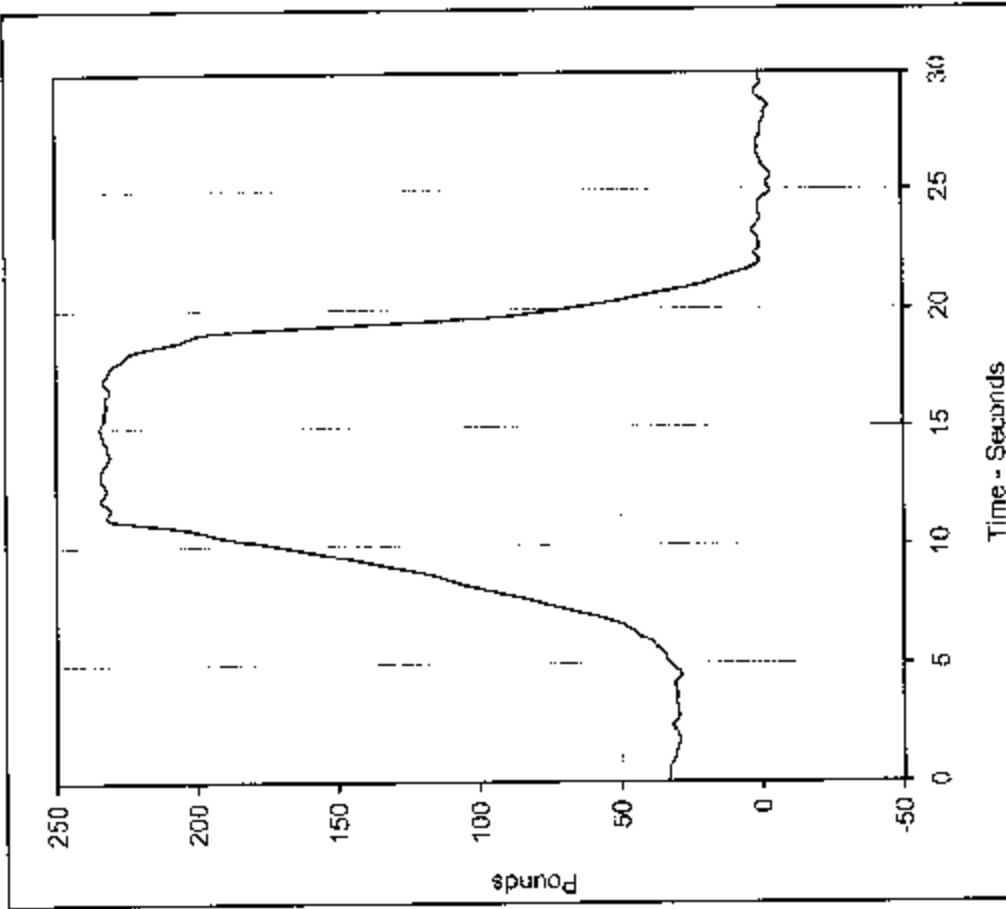




Curve Description	CURNO	Type
Left Rear Pass. Seat Back	001	FIL
Right Rear Pass. Seat Back	002	FIL

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	197.3	12.0	-6.8	25.5	1
Pounds	211.3	11.4	-11.8	28.7	1

Test Program: FMVSS 207 Fwd. Seat Back and Seat Cush. (Rear)
 Test Vehicle: 2003 Toyota Corolla 4 Door Sedan



Curve Description	CURNO	Type
Center Rear Pass. Seat Cushion	003	FIL

Units	Max	Time	Min	Time	Filter (Hz)
Pounds	234.6	15.0	-3.6	24.9	1

Test Date: 8/7/03
 Project No.: C35104



APPENDIX C

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

FMVSS 207

Test Equipment List

8/5/03

2003 Toyota Corolla 4 Door Sedan

Description	Manufacturer	Model No.	Serial No.	Limit	Accuracy	Cal. Date	Due Cal.
Hydraulic Pump	Lincoln	T-3825-C	2460952	8 gpm @ 2700 psi			
Computer	Panasonic	CF-71	81MAA01852	N/A	N/A	N/A	N/A
TDAS	DTS	TDAS	DM0103	N/A	SAE J211	11/15/02	11/15/03
Load Cell	Lebow	3132	622	500LB	± 1.0%	6/2/03	12/1/03
Load Cell	BLH	U3G1	49296	3K	± 1.0%	6/1/03	11/30/03
Load Cell	BLH	U-1C	N673	6K	± 1.0%	6/2/03	12/1/03
Load Cell	BLH	U-1C	11139	12K	± 1.0%	6/2/03	12/1/03
Load Cell	Alinco	342-E	22438-B	10K	± 1.0%	5/30/03	11/28/03
Load Cell	Alinco	342-E	22440-A	10K	± 1.0%	5/30/03	11/28/03

